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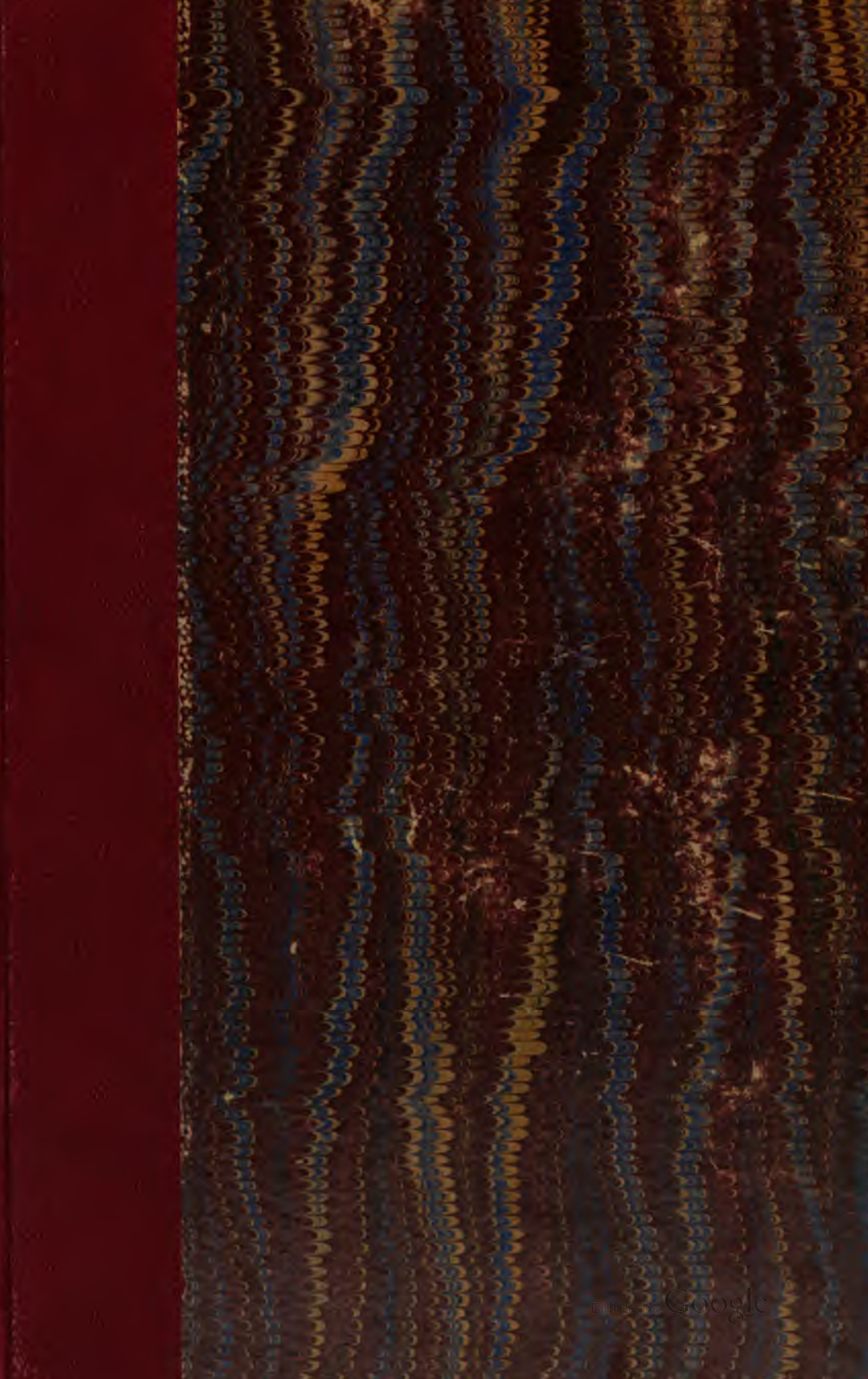
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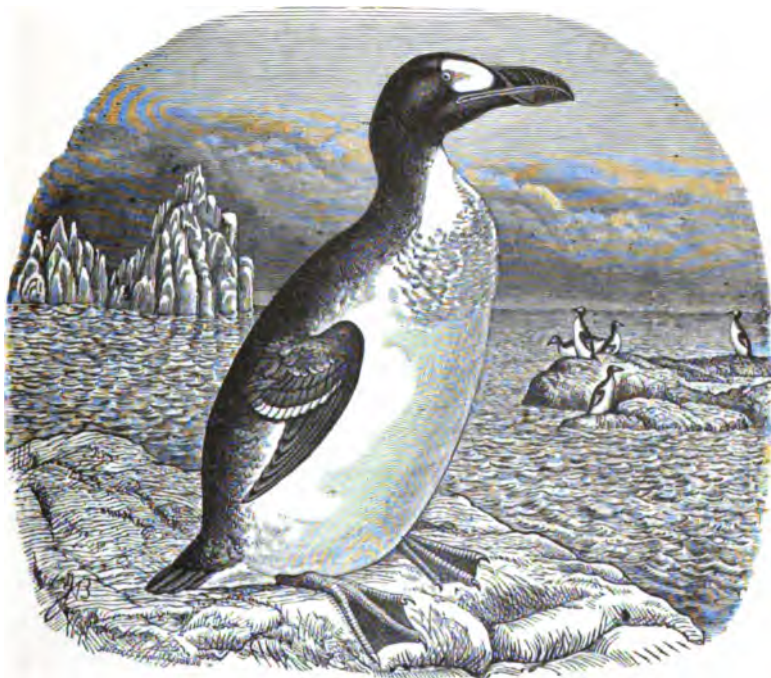
OLD SERIES, } CONTINUATION OF THE } NEW SERIES
VOL. XIV. } BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB { VOL. VI

The Auk

A Quarterly Journal of Ornithology

EDITOR,
J. A. ALLEN

ASSOCIATE EDITOR,
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VOLUME VI
PUBLISHED FOR
The American Ornithologists' Union

NEW YORK
L. S. FOSTER
1889

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*BOGDANOW, Prof. Dr. MODEST N., University of Moscow, Moscow, 1884	
BROOKS, W. E., Milton, Ontario, Canada....	1886
BULLER, Sir WALTER LAWRY, 8 Victoria Chambers, Victoria St., Westminster, London, S. W.....	1883
BUREAU, Dr. LOUIS, Ecole de Médecine, Nantes, France.....	1884
BUTLER, Lieut.-Col. E. A., Herringfleet Hall, Lowestoft, England ..	1884
BÜTTIKOFER, Dr. J., Leyden, Holland	1886
COLLETT, Prof. ROBERT, Zoölogical Museum, Christiania, Norway ..	1883
COOPER, Dr. J. G., Haywards, California	1884
CORDEAUX, JOHN, Great Cotes, Ulceby, Lincolnshire, England.....	1884
DALGLEISH, JOHN J., 8 Athole Crescent, Edinburgh, Scotland.....	1883
DAVID, L'Abbé ARMAND, Rue de Sèvres, 95, Paris.....	1883
DUBOIS, Dr. ALPHONSE, Museum Nat. History, Brussels.....	1884
DUGES, Prof. ALFREDO, Colegio del Estado, Guanajuato, Mexico.....	1884
ECHT, ADOLF BACHOFEN VON, Nussdorf, near Vienna.....	1884
FATIO, Dr. VICTOR, Geneva, Switzerland.....	1884
FIELDEN, Lieut.-Col. H. W., West House, Wells, Norfolk, Eng- land.....	1884
FERRARI-PEREZ, Prof. FERNANDO, Naturalist Mexican Geol. Expl. Commission, Pueblo, Mexico.....	1885
FREKE, PERCY EVANS, Rosemount, Dundrum, County Dublin, Ire- land.....	1883

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GADOW, DR. HANS, The New Museums, Cambridge, England.....	1884
GIRTANNER, DR. A., St. Galle, Switzerland.....	1884
GODMAN, F. DU CANE, 10 Chandos Street, Cavendish Sq., London..	1883
GODWIN-AUSTEN, Lieut.-Col. H. H., Shalford House, Guilford. Eng- land.....	1884
GRANDIDIER, ALFRED, 6 Rond-Point des Champs Elysées, Paris....	1883
GURNEY, JOHN HENRY, JR., Keswick Hall, Norwich, England.....	1883
*HAAST, DR. JULIUS VON, Christ-church, New Zealand.....	1884
HARGITT, EDWARD, Broadwater Lodge, Broadwater, Worthing, Sussex, England.....	1884
HARTING, JAMES EDWARD, Linnæan Society, Burlington House, Pic- cadilly, London.....	1883
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HAYEK, DR. GUSTAV VON, Vienna.....	1884
HOLUB, DR. EMIL, Vienna.....	1884
HOMER, DR. E. F. VON, Stolp, Germany.....	1884
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LAYARD, E. L., H. B. M. Consul, Noumea, New Caledonia.....	1884
MACFARLANE, ROBERT, Winnipeg, Manitoba.....	1886
MADARÁSZ, DR. JULIUS VON, National Museum, Budapest, Hungary.	1884
MALMGREN, DR. A. J., University, Helsingfors, Finland.....	1884
*MARSHALL, Graf A. F., Wallzeil, 33, Vienna.....	1884
MENZBIER, DR. M., Moscow, Russia.....	1884
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MIDDENDORF, DR. A. VON, Dorpat, Russia.....	1884
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NICHOLSON, FRANK, 62 Fountain St., Manchester, England.....	1884
OATES, E. W., 6 Tenterden St., Hanover Sq., London.....	1884
OUSTALET, DR. ÉMILE, Jardin des Plantes, 55 Rue de Buffon, Paris.	1883
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SHELLEY, Capt. G. E., 6 Tenterden St., Hanover Sq., London.....	1884
*STEVENSON, HENRY, Unthank's Road, Norwich, England.....	1884

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THEEL, Dr. HJALMAR, University of Upsala, Upsala, Sweden	1884
TRISTRAM, Rev. Canon H. B., The College, Durham, England.....	1884
TSCHUSI ZU SCHMIDHOFFEN, Count VICTOR RITTER VON, near Hal- lein, Salzburg, Austro-Hungary.....	1884
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AMERY, CHARLES F., Forest and Stream Pub. Co., 318 Broadway, New York City.....	1886
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EVERMANN, Prof. B. W., Terre Haute, Ind.....	1883
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FORBUSH, EDW. H., 424 Main St., Worcester, Mass.....	1887
FOX, Dr. WM. H., 1517 L. St., Washington, D. C.....	1885
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GAULT, B. F., 878 Washington Building, Chicago, Ill.....	1885
GESNER, REV. A. H., 22 East 131st St., New York City.....	1885
GIBSON, LANGDON, Flushing, Queens Co., N. Y.....	1887
GOODALE, JOS. L., 8 Craigie St., Cambridge, Mass.....	1885
GOSS, B. F., Pewaukee, Waukesha Co., Wis.....	1883
GRANT, U. S., 200 West 19th St., Minneapolis, Minn.....	1885
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GREGG, DR. WM. H., 143 West 21st St., New York City.....	1885
HANMER, C. C., Burnside, Conn.....	1888
HARDY, MISS FANNIE P., Brewer, Maine.....	1886
HARDY, MANLY, Brewer, Maine.....	1883
HASBROUCK, EDWIN M., 138 So. Salina St., Syracuse, N. Y.....	1887
HAUPT, LOUIS, 61 Liberty St., New York City.....	1888
HAWLEY, A. H., 670 President St., Brooklyn, N. Y.....	1886
HAZARD, R. G., 2d, Peace Dale, R. I.....	1885
HEIMSTREET, DR. T. B., 14 Division St., Troy, N. Y.....	1888
HELME, ARTHUR H., Millers Place, Suffolk Co., N. Y.....	1888
HENDRICKSON, W. F., Care the B. B. C. Co., 860 Broadway, New York City.....	1885
HICKS, GEO. J., New Brighton, Richmond Co., N. Y.....	1887
HICKS, HENRY, Westbury Station, Queens Co., N. Y.....	1888
HICKS, JOHN D., Old Westbury, Queens Co., N. Y.....	1888
HIGGINS, ALGERNON S., 1227 Fulton St., Brooklyn, N. Y.....	1888
HOLBROOK, JUDGE S. T., Norwich, Conn.....	1883
HOLMES, E. S., D. D. S., 103 Ottawa St., Grand Rapids, Mich.....	1885
HOLTERHOFF, G., Jr., San Diego, Cal.....	1883
HOLZINGER, JOHN M., (Curator Museum) State Normal School, Win- ona, Minn.....	1887
HORNADAY, W. T., U. S. Nat. Mus., Washington, D. C.....	1888
HOUGH, ROMEYN B., Lowville, N. Y.....	1883
*HOWLAND, SNOWDON, Newport, R. I.....	1883
HOY, DR. P. R., Racine, Wis.....	1883
HOYT, WM. H., Stamford, Conn.....	1888
HURTER, JULIUS, 2346 So. 10th St., St. Louis, Mo.....	1888
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INGALLS, CHARLES E., East Templeton, Mass.....	1885
INGERSOLL, ALBERT M., Box 712, San Diego, Cal.....	1885
JACKSON, THOS. II., West Chester, Pa.....	1888
JAMES, HOWARD K., Courant Building, Hartford, Conn.....	1888
JARDINE, CHAS. S., 318 East 39th St., New York City.....	1888
JEFFRIES, WM. A., 78 Devonshire St., Boston, Mass.....	1883
JENKS, PROF. J. W. P., 31 George St., Providence, R. I.....	1888
JENNINGS, ALLEN H., 201 Oak Ave., Baltimore, Md.....	1886
JOHNSON, ALBERT I., Hydeville, Vt.....	1885
JOHNSON, FRANK, Parkville, Kings Co., N. Y.....	1888
JOHNSON, LORENZO N., Evanston, Ill.....	1888
JOHNSON, PROF. O. B., Seattle, Washington Territory.....	1885

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JOHNSON, ROBERT W., Colorado Springs, Col.....	1888
JONES, LYNDIS, Grinnell, Iowa.....	1888
JORDAN, A. H. B., Willsborough, Essex Co., N. Y.....	1888
JORDAN, Prof. D. S., Bloomington, Ind.....	1885
JOUY, P. L., Smiths. Inst., Washington, D. C.....	1883
KENDALL, W. C., Freeport, Cumberland Co., Me.....	1886
KEYES, C. R., Des Moines, Iowa.....	1885
KING, Miss ELLEN, Great Neck, Queens Co., N. Y.....	1888
KING, GEORGE GORDON, Newport, R. I.....	1888
KNOWLTON, F. H., U. S. Nat. Mus., Washington, D. C.....	1883
KOHN, GUSTAVE, 14 Carondelet St., New Orleans, La.....	1886
*KUMLIEN, THURE, Milwaukee, Wis.....	1883
LAMB, CHARLES R., Cambridge, Mass.....	1885
LANTZ, Prof. D. E., Manhattan, Kansas.....	1885
LAWRENCE, FRANK M., Moriches P. O., Suffolk Co., N. Y.....	1888
LAWRENCE, ROBT. B., Mills Building, New York City.....	1883
LAWRENCE, WM. M., 51 Liberty St., New York City.....	1888
*LINDEN, Prof. CHARLES, Buffalo, N. Y.....	1884
LLOYD, WILLIAM, El Paso, Texas.....	1885
LOOMIS, JOHN A., Paint Rock, Concho Co., Texas.....	1887
LOOMIS, LEVERETT M., Chester, S. C.....	1883
LUCAS, FREDERIC A., U. S. Nat. Mus., Washington, D. C.....	1888
MABBETT, GIDEON, Rodney, Jefferson Co., Miss.....	1888
MACKAY, Prof. A. H., Pictou, Nova Scotia.....	1885
MACOUN, Prof. J., Geol. and Nat. Hist. Surv., Ottawa, Can.....	1883
MARLATT, CHAS. LESTER, Manhattan, Kansas.....	1888
MARSHALL, ALFRED, 43 Dey St., New York City.....	1886
MASON, EDWARD C., Arlington, Mass.....	1888
MATHERS, Dr. J. R., Buckhannon, W. Va.....	1888
MERRIAM, Miss FLORENCE A., Locust Grove, Lewis Co., N. Y.....	1885
MERRILL, HARRY, Bangor, Maine.....	1883
METCALFE, WM. C., 21 Cortlandt St., New York City.....	1886
MILLER, G. S., Jr., Peterboro, N. Y.....	1886
MILLER, Mrs. OLIVE THORNE, 236 Greene Ave., Brooklyn, N. Y.....	1887
MINOT, H. D., Care of St. Paul, Minneapolis and Manitoba R. R. Co., St. Paul, Minn.....	1883
MOORE, J. PERCY, 1931 Judson Place, Philadelphia, Pa.....	1886
MORCOM, G. FREAM, 870 North Park Ave., Chicago, Ill.....	1886
MORRIS, GEO. SPENCER, Olney, Philadelphia, Pa.....	1887
MORRIS, ROBT. O., Springfield, Mass.....	1888
MORTIMER, BENJAMIN, Box 216, Sandford, Fla.....	1888
MURDOCH, JOHN, Smiths. Inst., Washington, D. C.....	1883
NICHOLAS, GEORGE LAWRENCE, Mt. Sinai Hospital, Lexington Ave., New York City.....	1888
NORRIS, J. PARKER, 723 Walnut St., Philadelphia, Pa.....	1886
NORTON, RICHARD, Cambridge, Mass.....	1888
OBERHOLSER, HARRY C., Red Bank, N. J.....	1888

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ONG, PLUMMER L., Clarence, Shelby Co., Mo.....	1888
PAINE, AUGUSTUS G., Jr., Champlain Fibre Co., Willsborough, N. Y.....	1886
PALMER, T. S., Berkeley, Cal.....	1888
PALMER, WM., U. S. Nat. Mus., Washington, D. C.....	1888
PANNEPACKER, D. E., 2513 No. 12th St., Philadelphia, Pa.....	1888
PARK, AUSTIN F., 31 Boardman Building, Troy, N. Y.....	1885
PARKER, HARRY G., Chester, Delaware Co., Pa.....	1886
PEACOCK, W. F., Marysville, Cal.....	1888
PENNOCK, C. J., Kennett Sq., Chester Co., Pa.....	1888
PERKINS, CHAS. E., Hartford, Conn.....	1888
PETERSON, J. P., Luck, Wis.....	1885
PIERS, ARTHUR, 288 St. James St., Montreal, Can.....	1888
PINDAR, L. O., Hickman, Ky.....	1886
PLEASANTS, J. H., Jr., 606 Cathedral St., Baltimore, Md.....	1888
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RALPH, Dr. W. L., 26 Court St., Utica, N. Y.....	1888
RATHBUN, FRANK R., 40 Franklin St., Auburn, N. Y.....	1883
RAWSON, CALVIN L., Norwich, Conn.....	1885
RESSELL, CYRUS B., Ercildown, Chester Co., Pa.....	1888
RICE, FRANK L., Evanston, Cook Co., Ill.....	1886
RICHARDS, JOHN BION, 8 Barnaby St., Fall River, Mass.....	1888
RICHARDSON, JENNESS, Am. Mus. Nat. Hist., New York City.....	1888
RICHMOND, CHAS. W., U. S. Geol. Surv., Washington, D. C.....	1888
RIECKER, ERNST, 900 So. 4th St., St. Louis, Mo.....	1888
RIKER, C. B., South Orange, N. J.....	1885
RILEY, Prof. C. V., U. S. Entomologist, Washington, D. C.....	1885
RIVES, Dr. WM. C., Jr., Newport, R. I.....	1885
ROBBINS, WM. A., 178 Garfield Place, Brooklyn, N. Y.....	1888
ROBERTS, W. F., 503 E St., N. W., Washington, D. C.....	1888
ROOSEVELT, THEODORE, Oyster Bay, Queens Co., N. Y.....	1888
RUSSELL, GEO. C., 144 W. 7th St., Erie, Pa.....	1888
SAGE, HENRY M., 1010 Chapel St., New Haven, Conn.....	1885
SCOTT, W. L., 86 Sparks St., Ottawa, Can.....	1883
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SHELTON, GEO. H., Seymour, Conn.....	1888
SHORES, Dr. E. L., Soldiers' Home, Hampton, Va.....	1883
SLADE, JOHN A., 1134 Herkimer St., Brooklyn, N. Y.....	1888
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SMITH, HORACE G., Jr., 2918 Lafayette St., Denver, Col.....	1888
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SMITH, S. SIDNEY, 59 Wall St., New York City.....	1888
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SPELMAN, H. M., 62 Sparks St., Cambridge, Mass.....	1883
SPRATT, Dr. G. R., Coatesville, Pa.....	1887
STANTON, Prof. J. Y., Bates College, Lewiston, Me.....	1883

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STEPHENS, F., Ballena, San Diego Co., Cal.....	1883
STONE, WITMER, Fisher's Lane, Germantown, Pa.....	1885
STUDER, JACOB H., 103 W. 14th St., New York City.....	1888
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TREAT, WILLARD E., East Hartford, Conn.....	1885
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TROTTER, Dr. SPENCER, Prof. Nat. Hist., Swarthmore College, Swarthmore, Pa.....	1888
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WADSWORTH, D. S., Box 1061, Hartford, Conn.....	1885
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THE AUK:

A QUARTERLY JOURNAL OF ORNITHOLOGY.

VOL. VI.

JANUARY, 1889.

No. I.

THE 'BOOMING' OF THE BITTERN.

BY BRADFORD TORREY.

ON the 30th of May last Mr. Walter Faxon and I spent the afternoon in some large meadows in Wayland, Massachusetts where we had the good fortune to witness the musical performances of *Botaurus lentiginosus* under peculiarly favorable conditions. These performances, highly curious in themselves, are not described, so far as I know, in any of our standard ornithological works. Audubon had never even heard them; and neither Wilson, Nuttall, Brewer, nor Coues,—nor any of their correspondents,—appears ever to have seen them. Clearly the Bittern's reputation as a recluse—a "shady character," as Dr. Coues calls him—is well deserved. Yet even he, it would seem, feels now and then an impulse to make a show. On the present occasion, at all events, he may fairly be said to have taken the platform; coming forth from his hiding-place amid the tall meadow grass, and whether he knew it or not, offering to a pair of inquisitive Yankees as protracted and open a view as they could have desired of his most intimate mysteries.

Our first bird, and principal performer, was a pumper, not a stake-driver; that is to say, his notes resembled precisely the noise of an old-fashioned wooden pump. We were on the railway, which runs through the meadow at an elevation of perhaps seven feet above it, and after listening to the bird for some time, and discussing between ourselves his probable distance from us, we walked up the track, hoping to locate the sound more definitely.

W
By and by this grew so near that we began to wonder whether we might not obtain a sight of its author. We swept the field with our opera-glasses, and presently descried the bird's head erect and motionless amidst the grass. Except for the eye, which we were near enough to see plainly, it might have been a stick. Soon it stirred, and then all at once the fellow commenced pumping. The action was only partially visible, of course; but after (tj) had been repeated several times, the Bittern started towards the remains of a last year's hay-cock, which was still high enough to be entirely above the grass, and while we held our breath he mounted it, looking furtively in all directions, and putting one foot before the other so slowly that we could barely see it move. It was an admirable display of one of the Bittern's most characteristic and useful accomplishments,—the art of imperceptible motion. He got fairly upon the hay at last, where we could see everything but his toes (these he obligingly showed us afterwards) and then he fell again to pumping, and kept at it for at least an hour. This operation, as well as I can put it into words, is as follows.

First the bird opens his bill quickly and shuts it with a click; then he does the same thing again, with a louder click; and after from three to five such snappings of the beak, he gives forth the familiar trisyllabic pumping notes, repeated from three to eight times. With the preliminary motions of the bill the breast is seen to be distending; the dilatation increases until the pumping is well under way, and as far as we could make out, does not subside in the least until the pumping is quite over. It seemed to both of us that the bird was swallowing air,—gulping it down,—and with it distending his crop; and he appeared not to be able to produce the resonant pumping notes until this was accomplished. It should be remarked, however, that the gulps themselves, after the first one or two at least, gave rise to fainter sounds of much the same sort. The entire performance, but especially the pumping itself, is attended with violent convulsive movements, the head and neck being thrown upwards and then forwards,—like the Night Heron's when it emits its *quow*, only with much greater violence. The snap of the bill, in particular, is emphasized by a vigorous jerk of the head. The vocal result, as I say, is in three syllables; of these the first is the longest, and, as it were, a little divided from the others, while the third is almost like an echo of the second. The middle syllable is very strongly accented.

When our bird had been at work for perhaps half an hour a train of cars came along, and as we were sitting squarely upon the track, we of course had to move. This we thought would put an end to the show; but the Bittern held his ground, and as soon as the train had thundered by resumed his amusement, which looked, I am bound to say (and I doubt whether anybody could see it without receiving the same impression), unpleasantly like the contortions of a seasick patient. Between the acts he put himself into various positions; frequently assuming the hump-backed attitude in which the artists have commonly represented him; at other times raising his long neck straight into the air, his body with it, and standing as erect and statue-like as any soldier. Now he faced us; then he stood sidewise; and again he fairly turned his back on us. He was twelve and a half rods away, as nearly as we could tell by pacing; and our opera-glasses, magnifying three diameters, reduced the distance to about seventy feet, while the sun's position was such as to afford us every possible advantage.

This exhibition lasted for something more than an hour, after which the bird suddenly took wing, and flew down the meadow for a short distance, and on alighting in the grass pumped immediately! Within a few minutes he rose again, and again pumped instantly upon alighting. This I thought surprising, in view of the great exertion required, both in rising from the ground and in pumping; but it is, perhaps, analogous to the habit of smaller birds, who in times of excitement are given to breaking out into song the moment they strike the perch.

As we walked down the railroad, on our way back to the station, three Bitterns were in the air at once, and at the same moment a fourth was making music in the meadow on the other side of the track. One of the flying birds persistently let his legs dangle, instead of drawing them up behind him in the ordinary manner. He was high in the air, and I suspected was engaged in showing off, though I have never read of the Bittern's having any such custom.

The second musician, as good luck would have it, was a stake-driver. The imitation was as remarkable in this case as in the other, and the difference between the two performances was manifest instantly to both Mr. Faxon and myself. The middle syllable of the second bird was a veritable whack upon the head

of a stake. I have no difficulty whatever in crediting Mr. Samuels's statement that, on hearing it for the first time he supposed a woodman to be in the neighborhood, and discovered his error only after toiling through swamp and morass for half a mile. On this one point at least, it is easy to see why authors have disagreed. The fault has not been with the ears of the auditors, but with the notes of the different birds. Our stake-driver, however, like the pumper, made use of but three syllables, whatever Mr. Samuels's birds may have done, and the emphasis—the whack—was unmistakably upon the second.

In speculating upon the probable method by which these extraordinary sounds are produced, I have had in mind the following considerations :—

1. The quality of the notes,—resonant, yet curiously hollow and confined, as if emitted under water or under ground, as so many writers have taken for granted.

2. The distention of the breast, *not of the throat*.

3. The violent contortions of the bird.

4. The strong resemblance of the notes to pumping. This, it ought to be said for the benefit of readers who may never have heard them, is not a resemblance to the sounds occasioned by the giving forth of the water, but to those caused by the suction of the air in the tube before the water is brought up.

5. The similarity in kind between the full pumping notes and the fainter preceding ones.

6. The fact that when a man takes air into his stomach, as some men have the knack of doing, the act of gulping is accompanied by a sound extremely like the Bittern's, while the belching of the air out again is attended by a noise quite unlike any which the bird utters.

7. The fact that it is possible to imitate the Bittern's notes (in miniature, of course) by certain quick openings and shuttings of the lips, the breath meantime being inhaled. That this imitation is not imaginary I have satisfied myself by the following tests: First, I tried it upon Mr. Faxon himself, who pronounced it good as to tone and accent, and especially as to the echo-like effect of the final syllable. Then I tried it upon a man who had never heard the bird, and he exclaimed at once, "Why, that sounds like an old pump!"

In view of these things I am inclined to believe (I speak for

myself alone): 1st, that the sounds are not caused entirely by any ordinary exertion of the vocal organs, but are connected in some way with the distention of the crop. 2d (and somewhat less confidently), that they are produced by the drawing in of the breath, not by the giving of it forth, after the crop is full, the inhalations being attended by forcible openings and shuttings of the beak. That they are not produced under water, or with its help, is sufficiently evident from the fact that our bird remained upon the hay-cock throughout. His bill was never for an instant near any water.

During the hour or more that we sat upon the railway we had abundant opportunity to compare impressions; and among other things we debated how the notes to which we were listening could best be represented in writing. Neither of us hit upon anything satisfactory. Since then, however, Mr. Faxon has learned that the people of Wayland have a name for the bird (whether it is in use elsewhere I cannot say) which is most felicitously onomatopoeic; namely, *plum-pudd'n'*. I can imagine nothing better. Give both vowels the sound of *u* in *full*; dwell a little upon the *plum*; put a strong accent upon the first syllable of *pudd'n'*; especially keep the lips nearly closed throughout; and you have as good a representation of the Bittern's notes, I think, as can well be put into letters.*

The preliminary clicking of the bill, mentioned above, is doubtless the noise that Naumann heard from the European Bittern, without suspecting how it was made. When he got close enough, he says, he sometimes heard a low sound precede the bellow, "as if the surface of the water had been beaten with a reed." Thoreau heard it also, at least on one occasion. He writes in his journal†:

"The stake driver is at it in his favorite meadow. I followed the sound, and at last got within two rods. When thus near, I heard some lower sounds at the beginning like striking on a stump or a stake, a dry, hard sound, and then followed the gurgling, pumping notes fit to come from a meadow. This was just within

* I am aware, of course, that Nuttall and nearly or quite everybody else who has ever described or written the notes, has placed the accent upon the last syllable. Why there should be this discrepancy is to me inexplicable; but there is no point to which Mr. Faxon and I have attended with more carefulness, both on the day in question and since, and there is none on which we are more fully agreed.

† Summer, p. 193.

the blueberry and other bushes, and when the bird flew up alarmed, I went to the place, but could see no water, which makes me doubt if water is necessary to it in making the sound. Perhaps it thrusts its bill so deep as to reach water where it is dry on the surface."

This notion that water is somehow employed in the formation of the sounds seems always to have been pretty general, although Sir Thomas Brown, whose 'Pseudodoxia Epidemica' was published in 1646, treats it even then as a vulgar error. He says*: "That a bittor maketh that mugient noise, or as we term it, bumping, by putting its bill into a reed, as most believe, or as Bellonius and Aldrovandus conceive, by putting the same in mud or water, and after awhile retaining the air by suddenly excluding it again, is not so easily made out. For my own part, though after diligent inquiry, I could never behold them in this motion. Notwithstanding, by others whose observations we have expressly requested, we are informed that some have beheld them making this noise on the shore, their bills being far enough removed from reed or water; that is, first strongly attracting the air, and unto a manifest distention of the neck, and presently after, with great contention and violence excluding the same again."†

The only American author who has treated the subject as an eye-witness, so far as I can learn, is Dr. C. C. Abbott,‡ and his account of the *action* of the bird is limited to a single sentence. "In this case," he says, "the bird's beak, when it uttered the cry, was not quite withdrawn from the water, and its voice, therefore, was materially modified by this fact"! He makes no allusion to any motion of the head, nor to the inflation of the breast, although the bird was "within ten paces."§

* Book III, Chap. XXVII, 4. For this reference, as well as for much else, I am indebted to the kindness of Mr. Faxon.

† Upon the point of the similarity between the notes of *Botaurus lentiginosus* and those of *B. stellaris* the only direct testimony I have seen is that of Nuttall and Sir John Richardson, two Englishmen who may be presumed to have heard both birds. Nuttall says (Water Birds, p. 61): "Instead of the *bump* or *boom* of the true Bittern, their call is something like the uncouth syllables '*pump-au-gah*, but uttered in the same low, bellowing tone." Richardson's words are (Fauna Boreali-Americana, Pt. II, p. 374): "Its loud booming, exactly resembling that of the common Bittern of Europe."

‡ 'Waste-Land Wanderings,' p. 130.

§ A much more circumstantial though not altogether intelligible description is furnished by Count Wodzicki, in 'Naumannia,' Vol. II, Part II, p. 48, 1852. The bird, of course, is *B. stellaris*. "I saw the female ten paces from the male standing in shallow

Some years ago Mr. William Brewster mentioned to me that he had once detected a Bittern in the act of pumping; and whilst preparing this article I wrote to him requesting some account of the matter. This he has very kindly sent me, and I conclude my paper with his note. His observations, so far as they go, will be seen to confirm those of Mr. Faxon and myself in all essential particulars.

"The only occasion when I have actually seen the Bittern 'pump' was in Rock Meadow, Belmont, Mass., May 16, 1868. The bird was well out in the open meadow among short, green grass growing in perhaps two inches of surface water. I got within less than thirty yards of him before he took alarm and crouched. Previous to this he favored me with several performances in plain sight. He would extend his neck, then drawing in his head suddenly, would throw it out with a jerk as if he were afflicted with violent nausea or were trying to get rid of some obstruction in his throat, at the same time uttering the peculiar *pump-er-lunk*. After repeating the movement and its accompanying vocal notes several times in rather quick succession, he would stand nearly erect for a few moments before beginning again. As he stood with his back partly towards me I could not see his breast or throat distinctly, but I am sure he did not fill the latter with water while I was watching him, for not once did his bill descend low enough to get even a hurried sip.

"You are heartily welcome to make any use you see fit of the above. I am sorry it is so meagre, but I was too untrained an observer at the time to take very full notes, and twenty years is a long time to send the memory back. What little I have said, however, is, I am sure, a correct description of the episode."

water, with neck drawn in and crop inflated, in a *dolce far niente*, like a Florentine *dilettante* who in half-slumber listens to the most beautiful melody. This enraptured female with half-closed eyes had good cause to admire her richly gifted *virtuoso*, for he was a *basso* like Lablache. The artist was standing on both feet, his body horizontal and his bill in the water, and then a rumbling began, the water spirting about all the time. After a few sounds I heard the *ü* of Naumann; the bird lifted his head, threw it backward, and thrust his bill into the water, and then he uttered a roar so fearfully loud that I was frightened. This explained why some notes, which are heard but seldom and only at the beginning, sound so loud: they are those that the bittern produces when he has taken the water deep into the neck and throws it out with unusual force. The music went on, but the bird no longer threw his head backward, and I heard these loud sounds no more." I make no comments upon this narrative, being entirely at a loss what to say. An extract from it will be found in the 'Standard Natural History,' Vol. IV, p. 176.

NOTE.—Since the foregoing paper was written I have learned, through the courtesy of Dr. Stejneger, that Mr. Frank H. Nutter contributed an account of the Bittern's pumping to the 'Oölogist's Exchange' for April, 1888 (Vol. I, No. 4). I subjoin it in full.

"By the way, did you ever see a Bittern while engaged in its serenade? It is a ludicrous performance. One favored me with it once within easy range of my telescope. After standing in a meditative position for some time it would slowly raise its head and stretch up its neck till its bill pointed nearly straight upwards, when it commenced by several times opening and shutting its big beak with a snap that was plainly heard, though five or six hundred feet distant; it then uttered the characteristic notes from which it takes its common name of 'stake-driver' or 'thunder-pumper'; and truly it seems much like pumping, for each syllable seems to originate deep in the interior of the bird and to be ejected only with the greatest muscular exertion, puffing out its feathers and working its long neck up and down, as if choking to death. After a short season of meditation to recuperate its strength, the performance is again repeated, and doubtless to its mate, engaged in her maternal duties, it is the sweetest of music."



THE MAIN DIVISIONS OF THE SWIFTS.

BY FREDERIC A. LUCAS.

SINCE Dr. Sclater's paper on the genera and species of Swift (P. Z. S., 1865, pp. 593-617) they have been allowed to remain in the two subfamilies, Cypselinæ and Chæturinæ, into which he there divides this group. Dr. Sclater's divisions are founded solely on external characters, and he is very careful to state that he has paid but little attention to the species of the genera *Collocalia* and *Dendrochelidon*. In a footnote Dr. Sclater refers to a paper by Dr. Bernstein (Acta Academiæ Leopoldino-Carolinæ, Vol. 26, p. 15) as showing conclusively that *Collocalia* is in every point of view strictly Cypseline, and most nearly allied to *Dendrochelidon*. While I have not read Dr. Bernstein's paper

it is impossible for me to coincide in his view of the relationship of *Collocalia*, although fully agreeing with him in regard to its being in every point strictly Cypseline. *Collocalia*, for whose skeleton I am indebted to my friend Mr. C. F. Adams, is a member of the Chæturine group of Swifts, and so nearly resembles in structure our common Chimney Swift that it would be difficult on structural grounds to separate them generically.

The members of the genus *Dendrochelidon* on the other hand stand by themselves among the Swifts, the characters separating them from their relatives, as represented by *Micropus apus*, *M. subfurcatus*, *Panyptila saxatilis*, *Chætura pelagica*, and *Collocalia fuciphaga* are well marked. An entire skeleton of *Dendrochelidon* is unfortunately not at hand, but Prof. Alfred Newton has most kindly loaned me a skull and sternum of *D. mystacea* and two sterna of *D. wallacei*, which with some wing and leg bones furnish an abundance of good differential characters.* The skull alone would be quite sufficient to separate *Dendrochelidon* from the other Swifts and the other bones furnish strong corroborative testimony.

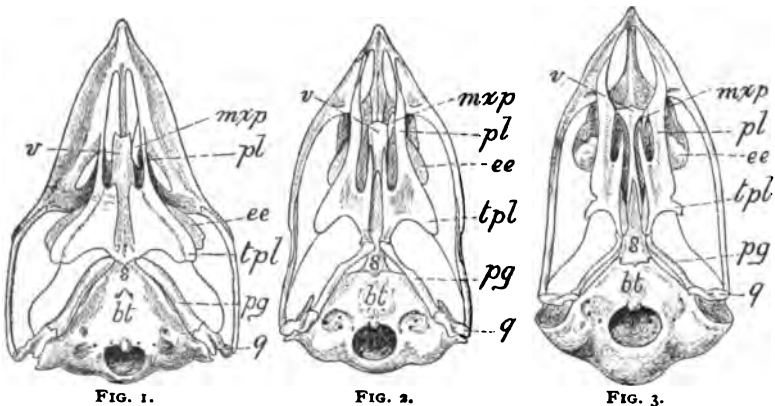
Viewing the cranium of *Dendrochelidon* from its dorsal aspect, the rostral portion is seen to be both narrower and longer than in either *Micropus*, *Panyptila*, *Chætura*, or *Collocalia*. The mass of the ecto-ethmoid, so prominent in other Swifts, does not project beyond the outline of the frontals. There is no lachrymal in any of the skulls of *Dendrochelidon* at my disposal, though this little bone is present in *Micropus subfurcatus* and *Collocalia fuciphaga*.

A decided structural difference exists between *Dendrochelidon* and the other Swifts in the frontal region from the fact that in *Dendrochelidon* the nasals are posteriorly narrow, and simply abut against the frontals, while in the other Swifts an external process of the wide nasals is carried upward and backward, overlying the frontals. In this respect the adult *Dendrochelidon* much resembles the younger stages of other Swifts, in which the external and internal processes of the nasal ossify first, forming a crescentic bar of bone bounding the nasal opening. Later on the ascending process ossifies, forming a tri-radiate bone, extremely well marked in *Panyptila*. The interorbital portion of the frontals

*See, however, foot-note on page 11.

is comparatively wide, slightly suggesting *Caprimulgus* in its outline. Viewed from below the elongation of the rostrum is very noticeable while the pre-maxillaries are seen to run well backward, thus contrasting with the other Swifts and once more suggesting *Caprimulgus*.

Dendrochelidon has the characteristic unciform maxillo-palatines of the Swifts, but the palatines and vomer differ totally from the Cypseline pattern. The pre-palatine bar is narrow, instead of wide, the external palatine notch is wanting, and the trans-palatine portion is entirely different in shape from that of the other Swifts, being not unlike *Caprimulgus*. The anteriorly T-shaped vomer of the other Swifts is replaced by a vomer that is scarcely expanded at all distally.



Ventral aspect of crania of 1. *Antrostomus vociferus*, 2. *Dendrochelidon mystacea*, 3. *Chatura pelagica*, all enlarged to the same absolute size.

v, vomer; mxp, maxillo-palatine; pl, prepalatine; ee, ecto-ethmoid; tpl, trans-palatine; pg, pterygoid; q, quadrate; s, sphenoid; bt, basi-temporal.

One maxillo-palatine is omitted to better show the vomer.

Owing to foreshortening the length of the rostral portion of the skull of *Dendrochelidon* is apparently not so great as it is in reality.

The sphenoid of *Dendrochelidon* partakes of the general elongation of the skull, and the articulations of the pterygoids with the sphenoid are brought well forward, and form a rather sharp angle with one another. This is a departure from the Cypseline structure, in which the pterygoids are closely applied to the basi-temporal, and a step toward the Passerine arrangement.

While retaining the general characters of the Swifts, the shoulder girdle of *Dendrochelidon* departs widely from the typical Cypseline pattern. The xiphoid margin of the sternum instead of being convex is slightly concave, and instead of being imperforate presents on either side a subtriangular fenestra occupying the place of the notch found in Passerine birds. These fenestræ are not to be confounded with the sternal vacuities so constantly found in the Swifts, for large, irregular fenestræ are present in the body of the sternum; but the marginal fenestræ are such as would be formed were the external xiphoid process of a Passerine bird united with the body of the sternum by a bar of bone. The outline of the carina is more convex than in any of the other Swifts, and recalls the Caprimulgine sternum.

The coracoid is moderately long, much longer than in any of the allied forms, its length, in comparison with the total length of the sternum, being $\frac{87}{100}$ in *D. wallacei*, and $\frac{73}{100}$ in *D. mystacea*, while in *Micropus apus* it is $\frac{52}{100}$, in *Collocalia fuciphaga* $\frac{52}{100}$, and in *Chatura pelagica* $\frac{50}{100}$. The furcula is also longer and the hypocleidium better developed than in other Swifts, the furcula resting upon the anterior edge of the carina. The scapula is more decurved than in any other Swift except *Collocalia*, but experience with other forms shows that the scapula has but slight taxonomic value.

Unfortunately there is no humerus among the bones in my possession, but from the proportions of the other bones of the wing it would not be surprising if the humerus should prove to be longer and less strongly marked than the usual Cypseline pattern.* The radius and ulna, instead of being considerably shorter than the second metacarpal, are considerably longer, while they are also more concave toward one another than in other Swifts. The

*Since the above was written, Dr. W. K. Parker has very kindly sent me for examination a skeleton of *D. coronata*. This corresponds in the respective portions of its skeleton with the species already examined, while the humerus proves to be as surmised, much more slender and much less rugose than in the other Swifts.

The differences of proportional length between the wing bones of *Micropus apus* and *Dendrochelidon mystacea* can be well expressed in figures by calling the length of the metacarpals 100.

They are as follows:

	<i>M. apus.</i>	<i>D. mystacea.</i>	<i>Chatura.</i>	<i>Collocalia.</i>
Metacarpals	100	100	100	100
Radius	76	110	75	88
Humerus	56	95	60	63

'tarsus' is much shorter and wider in *Dendrochelidon* than in any of its relatives, and the anterior and posterior surfaces instead of being deeply grooved for the reception of tendons are decidedly convex. The first metatarsal is well developed and is placed well up on the 'tarsus,' the ungual phalanges are not of the regular Cypseline pattern, and the phalanges, within the penultimate, instead of being short or obsolete are moderately long. Finally the 'tarsus' is shorter than even the first digit, while in all other Swifts it is longer, notably so in *Chatura*.

From the preceding notes it may be seen that marked differences separate the genus *Dendrochelidon* from the other Swifts, while in some points it seems to incline towards the Goatsuckers. Some of the distinctions existing between *Dendrochelidon* and the other Swifts are merely differences of degree, but others are differences of kind, so that *Dendrochelidon* not only differs from its relatives, but possesses structural characters of its own that appear quite equal to those of the rest of the Swifts combined. These differential characters are greater than those existing between the Thrushes and the Wrens, or even, I should say, between the Crows and the Swallows, so that although the material at hand is small, it is quite sufficient to warrant the formation of a new family for the members of the genus *Dendrochelidon*. The name proposed for this family is *Dendrochelidonidæ*.

The precise status of the Swifts may well be called a little uncertain, although the tendency certainly is to consider them as an order. Mr. Gill's term of super-family has been applied to the Swifts by Mr. L. Stejneger and may safely be used. Osteologically the group may be diagnosed as follows.

Super-family MICROPODOIDEA.

Palate ægithognathous; maxillo-palatines unciform; manubrium rudimentary; xiphoid margin of sternum entire, costal process small; coracoid short, not implanted in a groove, epi-coracoid feebly developed; furcula widely U-shaped, hypoclidium small, epiclidium obsolete.

The two families into which this super-family is divided may be differentiated as follows.

	<i>Micropodidæ.</i>	<i>Dendrochelidonidæ.</i>
Rostral portion of cranium	broad;	moderate.
Nasals	tri-radiate, overlapping frontals;	forked, abutting against frontals.
Ecto-ethmoid	wide;	narrow.
Vomer	anteriorly much expanded, T-shaped;	scarcely expanded.
Palatines	exteriorly notched;	unnotched.
Posterior margin of sternum	convex, imperforate;	slightly concave, with two foramina.
Tarsus	longer than first digit;	shorter than first digit.
Ulna	shorter than second metacarpal;	longer than second metacarpal.
Phalanges	except ultimate and penultimate, very short or obsolete;	not shortened.

The *Micropodidæ* apparently fall into two groups according to the development of their phalanges: *Micropodinæ*.—Number of phalanges 2, 3, 3, 3. *Chaturinæ*.—Number of phalanges 2, 3, 4, 5.

It is my earnest desire, at some future day, to treat of the Swifts in greater detail, but osteological material is very difficult to procure, and at present the matter must rest. I should be very grateful for any assistance in this respect, and in closing desire to express my thanks to Mr. Adams, Dr. Baur, Dr. Mearns, Dr. W. K. Parker, and Professor Newton for their kindness in providing me with the material on which this paper is based.



A SUMMARY OF OBSERVATIONS ON THE BIRDS OF THE GULF COAST OF FLORIDA.

BY W. E. D. SCOTT.

(Continued from p. 379.)

Phœnicopterus ruber. AMERICAN FLAMINGO.—This species was of regular though rare occurrence as a summer migrant as far north as Tampa Bay. The last birds killed there were four in number, all but one immature, in the year 1885, by Mr. Stuart of Tampa.

Of late years the birds have been so persistently persecuted in the region between Cape Romano and Cape Sable, and north from the former point to Sanibel Inlet, that they are now rare even at those points, though ten years ago resident there and not at all uncommon. Mr. Atkins while at Punta Rassa in 1885 and 1886 obtained several authentic records of the occurrence of the Flamingo in that region.

Some four years ago a party of 'plume hunters,' I am most credibly informed, killed in a single season, and during a single expedition after plumes a large number of these remarkable and beautifully colored birds. This was the main flock, and was well known to the spongers and other frequenters of the coast, in the region about Cape Romano. It seems, from information that I can gather, that the Flamingoes bred somewhere between Cape Romano and Cape Sable and south of that point quite recently, that is within five years, and a few may still find a nesting-ground on the Gulf Coast as numbers are seen every season, though the birds are not nearly as common as they once were and have become very shy from the repeated attacks upon them.

Ajaja ajaja. ROSEATE SPOONBILL.—The record in regard to the species in question is even more shocking than that of the Flamingo. The Roseate Spoonbill was ten years ago an *abundant* bird on the Gulf Coast of Florida, as far north at least as the mouth of the Anclote River. The birds bred in enormous rookeries in the region about Cape Romano and to the south of that point. These rookeries have been described to me by men who helped to destroy them, as being frequently of many acres in extent and affording breeding ground to thousands of Roseate Spoonbills. The birds bred in January and were in the best plumage late in November and in December. They do not seem to have bred north of Charlotte Harbor, so far as I am able to ascertain, but immediately after the breeding season was finished, and as soon as the young were able to shift for themselves, there was a great dispersal of the birds to the northward, particularly along the coast, though they were common at points in the interior.

As late as the season of 1880 in March I found the birds in great numbers at all the points I visited south of the mouth of the Anclote River, and even north of that point they were of occasional occurrence. In Old Tampa Bay and at John's Pass in March of the year in question I saw the birds daily and once at least two hundred alighted on a sandbar where I was watching some Peale's Egrets (*Ardea rufescens*) and were so tame and unsuspicious that I approached within twenty feet before they flew, and the flight was only for a short distance when they again alighted.

All this is changed. I have spent the past four winters and two summers in Florida. My old hunting grounds have all been carefully re-traversed, some of them many times, and the Roseate Spoonbill is almost as great a stranger to me as to my fellow workers who live the year round in Massachusetts.

I have seen two near Tarpon in all the time referred to, about a dozen once on Old Tampa Bay, and during my trip to Charlotte Harbor in 1886

perhaps twenty in all. They were in every case so wild and frightened at the *sight* of a human being that the only way one could identify them was by the wonderful blush pink of their feathers in the light.

I am firmly convinced that this change is directly attributable to the demands of the feather market for the skins of these gorgeous birds, and feel sure that it is only the question of a few more seasons of 'plume hunters' when this species will be almost as mythical in Florida, as the traditional Phoenix.

Guara alba. WHITE IBIS.—An abundant resident at most points on the Gulf Coast, but apparently preferring the fresh-water regions, especially in the breeding season, though I have frequently found them in rookeries, associated with various Herons, Cormorants, etc., where the water was brackish.

For many years the southeastern end of Lake Butler, near Tarpon Springs, has been a favorite breeding place for these birds, and I found vast numbers of them breeding there in April of the present year (1888). The nests were similar to those of the smaller Herons, which were also breeding abundantly at this point, except that they were lined with leaves and were more carefully built. Four eggs were generally the number of a full set, though once I found five in the same nest, and three were now and then the full number. The eggs were mostly laid, and had been incubated from a day or two to a week, when I visited the rookery on April 24, 1888.

These birds I found equally common at Panasoffkee Lake, the points visited on the Withlacooche River, and at many points in Charlotte Harbor and Tampa Bay.

Guara rubra. SCARLET IBIS.—Mr. Atkins of Key West writes me under date July 21, 1888, "I enclose the letter referring to the [Scarlet] Ibis. Mr. Hart is, to the best of my knowledge and belief, a truthful and reliable man and I have not the least doubt of what he writes in regard to the [Scarlet] Ibis."

The following I quote from this letter of Mr. T. E. Hart to Mr. Atkins, dated from Fort Ogden, Florida, May 13, 1888.

"I have done very well collecting plumes this season, but have not made a skin this year; have seen some fine Everglade Kites and Spoonbills and Rails, but was a long way from the boat and could not pack them; saw one Scarlet Ibis but did not shoot it. I was in a Heron rookery and saw it coming and thought it was a young White Ibis as its color was hid by the tops of the trees. I kept watching it coming along and when it got to an open place it hovered for a moment, and before I could shoot it, it dashed off at a right angle and I saw it no more. Joe saw one the same day. I could not have been mistaken in the bird. It was of the size and shape you wrote and was of a *dark* blood color. It was not more than sixty feet from me and was a perfect beauty."

I have perfect confidence in the above records and present them without hesitation as being of deep interest.

Plegadis autumnalis. GLOSSY IBIS.—Apparently rare on the Gulf

Coast. The only records I have are two birds, sex unknown, taken at Fort Meyers, on the Caloosahatchie River, in the spring of 1886. These two are in my collection and are numbered 5244 and 5245.

The local hunters in Hillsboro and Hernando Counties do not seem to have any knowledge of "Copper-colored Curlews," except such of the hunters as have travelled in the southern portion of the State.

Tantalus loculator. WOOD IBIS.—Common resident and frequents the cypress ponds, small streams, and rivers. It is rarely to be found on or close to salt water. Mr. Stuart of Tampa told me that several hundred of these birds bred in a rookery about eight miles from Tampa as recently as the spring of 1885. The breeding season was at its height about the last of March. This rookery has been broken up by local hunters and no birds breed there now, nor have I met with the species nesting in Florida.

Botaurus lentiginosus. AMERICAN BITTERN.—A rare summer resident but abundant at certain points in the autumn, winter, and spring. I have no record of the species breeding in Florida, but meet with the birds now and then throughout the warm months.

Botaurus exilis. LEAST BITTERN.—Common resident. Many breed both in the fresh and salt water marshes, though the former seem to be preferred.

The breeding season in the region about Tarpon Springs is in May and is completed, the young birds being able to fly, by the last of June, or first week in July.

Ardea occidentalis. GREAT WHITE HERON.—The regions between Cape Romano and Cape Sable and to the south of the latter point seem the localities preferred by this species, and here they are resident and breed. The breeding season is said to be in December and January. Mr. Atkins has kindly given me numerous records of their occurrence at Key West, and I have a note of one seen at the mouth of the Anclote River in April, 1887.

Ardea wuerdemanni. WÜRDEMANN'S HERON.—Mr. Stuart of Tampa has collected between Capes Romano and Sable some ten or more individuals of this species which I have personally seen. Most of these were in the colored phase and presented considerable individual variation, the details of which I am unable to place on record here, as I put off taking notes in this matter, being hurried at the time of my visit, and since then these valuable birds with many others have been destroyed by fire. Two of Mr. Stuart's birds were in the white phase, being pure white everywhere except on the last two or three inches of the their outer primaries, which were in color blue and marked much like the primary quills of *Ardea carulea* in its white phase of plumage.

For the notes I have on the breeding of this species, I am indebted to Mr. Stuart, who kindly placed them at my disposal. Mr. Stuart started in the early part of November, 1886, for the region alluded to above, and found Würdemann's Heron breeding at that season. Some of the birds had eggs in their nests, and some had young almost ready to fly so that it is fair to presume that the birds begin to breed about October 1. The

birds were solitary in their nesting habits, and not at all common, and very shy. Mr. Stuart described the half-grown young to me as similar to those of *A. wardi* of a like age, but as he did not appreciate their value, he preserved no skins of them.

I wish to allude in this connection to a bird which I took near Tarpon Springs on July 31, 1886. With some hesitancy, I am obliged to consider the specimen in question, No. 5305 of my collection, an adult male in worn full plumage, as a hybrid between Würdemann's and Ward's Heron. It is of a considerably lighter and more smoke-colored blue than any Ward's Heron which I have. It has the decidedly white underparts streaked with black, and dusky gray and even rusty color characteristic of *wuerdemanni*. The crown patch from the forehead is streaked with bluish dusky. The plumes of the lower neck are almost pure white. There are so many characters of Würdemann's and Ward's Heron combined in this bird, that this seems the only reasonable category to place it in, at least till we have further light on the subject.

Ardea wardi. WARD'S HERON.—For recent remarks on this species I refer the reader to 'The Auk' of April, 1888, pp. 183-184.

I have before me a series of some thirty Ward's Herons in all stages from the fledgling birds taken from the nest to those in full adult breeding plumage. Of the latter, there are nineteen in number, and it is my purpose to give a slight summary of certain features said to characterize this species. *All* of these nineteen birds are in *very fine, unworn, adult plumage*, they having been taken at the beginning of the breeding season. Eleven of them, without any apparent correlation to sex, have the crown patch streaked and suffused with bluish black or bluish brown. Eight have the crown patch untinged and pure white. In the eleven that have the crown patch streaked, there is every degree of variation presented from an almost obscured crown patch to one only faintly streaked or suffused. This streaking or suffusion usually begins on the forehead and extends for a greater or less distance backwards till lost in the white of the extremity of the crown patch. A very considerable percentage have some of the long occipital plumes not wholly black, but blue or whitish. Of the nineteen birds in question only *three* have pure *black shoulder-knots*, and the other *sixteen* present every phase between shoulder-knots slightly streaked with white to those heavily and conspicuously striped with that color. There is also a very considerable individual variation in the relative amounts of white and black on the underparts of these nineteen birds. These points have been briefly noticed to show what a wide range of variation these birds have in the coloration of special parts, and as conflicting somewhat with recent descriptions.

Mr. Atkins has found the species not infrequently at Key West and has lately sent me a young bird of the year from that point, indicating its breeding at or near that island.

Ardea egretta. AMERICAN EGRET.—A rather common resident, though not nearly so abundant as in former years. Breeds, according to locality and range, from late in January till June and even July.

***Ardea candidissima*.** SNOWY HERON.—A common resident and once abundant, but it has been so systematically persecuted and destroyed that it is yearly becoming more rare. It breeds, according to locality, from early in March till late in June. It is particularly difficult to give accurate data as to the natural breeding time of this and others of the smaller Herons, for they are hunted just during the period of the full perfection of the plumes with such unremitting perseverance by the cruel plume hunters that scarcely a 'rookery,' no matter how small, escapes. So that the poor survivors of these massacres are constantly seeking new nesting grounds, and I have found Herons about Tarpon Springs and other points, breeding *late in August*, and this species, *A. cærulea*, and *A. tricolor ruficollis* had *fresh eggs* as late as the 15th of that month.

***Ardea rufescens*.** REDDISH EGRET.—Locally this bird is still common. The breeding season begins late in March in Old Tampa Bay, and is at its height by the middle of April. These birds, so far as I am aware, always breed in rookeries where the adjacent waters are salt, and I have never seen them frequent the fresh water ponds even to feed.

Mr. John W. Atkins, of Key West, tells me in a recent letter that the dark phase of plumage is the commoner of the two at that locality, though he constantly sees the white phase as well, and he believes the birds breed on the islands. For further remarks on this species the reader is referred to 'The Auk,' April, 1888, p. 184. I am indebted to a friend in this locality for the information that this species in its dark phase still breeds in numbers at rookeries at St. Martin's Keys, about forty-five miles north of Tarpon Springs, in the Gulf.

***Ardea tricolor ruficollis*.** LOUISIANA HERON.—The most common of all the Herons, frequenting both salt and fresh water. The breeding season begins about the same time of the year as the last.

***Ardea cærulea*.** LITTLE BLUE HERON.—Still a common species. Frequents both fresh and salt water, but there seems to be a preference for the former. Breeds in the vicinity of Tarpon Springs from early in April to late in August. See, in this connection, the remarks on the breeding of *A. candidissima*, which also refer to this species.

***Ardea virescens*.** GREEN HERON.—Common, but not so gregarious as the several preceding species. Resident and breeds, generally in the vicinity of fresh water ponds. Breeds from late in April to July, in the vicinity of Tarpon Springs.

***Nycticorax nycticorax nævius*.** BLACK-CROWNED NIGHT HERON.—Rather common resident, and some breed.

***Nycticorax violaceus*.** YELLOW-CROWNED NIGHT HERON.—Common locally. Breeds in May and June about Tarpon Springs.

[To be continued.]

AN ACCOUNT OF THE BREEDING HABITS OF
PUFFINUS AUDUBONI IN THE ISLAND OF
GRENADA, WEST INDIES, WITH A NOTE
ON *ZENAIDA RUBRIPES*.

BY GEORGE N. LAWRENCE.

I HAVE received a letter from Mr. John G. Wells in which he writes as follows: "I had an outing on Easter Monday, and was fortunate enough to procure a bird new to our fauna, a description of which I enclose, and skins go by book post, which I trust will reach you safely, and that I shall soon have the pleasure of reading your decision on them."

The birds sent proved to be *Puffinus auduboni*. The following letter from Mr. Wells, dated Grenada, April 23, 1888, gives an account of his finding and procuring specimens of it while breeding, and also some facts connected with its life history.

"About eight or ten years ago numbers of dried birds used to be brought in to the market at Greenville for sale; they were young birds and very fat. The men who sold them said they were the young of the 'Diablotin,' and were caught in holes, on a small island to the eastward called Mouchoir Quarré. I endeavored to procure a live one but without avail, and in fact so many improbable stories were told concerning this bird, that I looked upon the 'Diablotin' as a myth, and concluded that the dried birds were the young of some species of Gull. My interest in the matter has, however, been recently revived. On Easter Monday last (2nd April, 1888) I paid a visit to a small islet called Labaye Rock, about a mile off the Port of Greenville, a place where I had been on many previous occasions. On exploring the Rock, a young bird was discovered in a hole under a stone; it was covered with down; in fact it seemed like a ball of fat enclosed in down. One of the boatmen pronounced it to be a young 'Diablotin'; this, as you may suppose, caused me to make a thorough search, with the happy result that I found an adult bird with a young one in one hole, and a full-grown female and one egg in another hole. The birds on being brought out into the light appeared to be quite foolish, and beyond a feeble attempt to bite seemed to make no effort to escape. I kept them alive for some days; they would take no food during the day, remaining perfectly quiet, but at night they fed on scraps of fish, and at intervals uttered a peculiar cry resembling a cat howl.

"They evidently lay but one egg, as only one young was found in each hole, and the egg which I got was highly incubated; it is of a dull white color and measures $2'' \times 1\frac{1}{8}''$.

"The name 'Diablotin' in this case is not to be depended upon, as the fishermen and boatmen about here seem to apply that name to any strange sea bird which they meet.

"The bird appears to be a Petrel, perhaps a well-known species, but it is new to me, and I believe has not been noted from this island. I send you by book post the skins of an adult female and the young bird found in the same hole."

Dr. Henry Bryant found it to be abundant in the Bahamas. His accounts of its breeding and of the size of the egg agree closely with that given by Mr. Wells. It appears to be also quite common in Bermuda, and several accounts of its capture there while breeding, may be found in Baird, Brewer and Ridgway (*Water Birds of N. A.*, Vol. II).

The general coloring of the nestling sent by Mr. Wells is dusky gray, whitish on the abdomen. It seems large for a bird in its downy stage of plumage, measuring $9\frac{3}{4}$ inches in length. The adult measures in length (fresh) $13\frac{3}{8}$ inches; in '*Water Birds of North America*' it is stated to be about 11 inches.

These specimens are in the National Museum.

The 'Diablotin' formerly inhabiting the Island of Guadeloupe, W. I., of which a very full history is given by Père Labat, in his '*Voyage aux Isles de l'Amerique*,' published in 1724, and comprising seven quarto pages, was a very different bird. It has been considered extinct there for a long time, and I think has not been satisfactorily identified with any known species.

Père Labat gives a full and interesting account of its habits, the hunt (chasse) after it on the 'Souphriere' of Guadeloupe, with a description of its size and plumage; there is also a plate of it.

It appears by his description and the plate, that the entire plumage was black; the shape of the bill in the plate is unlike that of a Petrel, but much resembles that of a Raven, but it may be improperly drawn. What the species was is a problem very desirable to be solved.

While breeding they were constantly pursued by the natives for food, when found in their holes there was no difficulty in their capture, as they made no efforts to escape. It would seem as if finally all were killed by persistent persecution, thus being a parallel case to that of the Great Auk.

As this old work is not very accessible to students, I have thought best to give the translation of a few extracts from it. He says—“This bird is about the size of a pullet; its plumage is black; it has the wings long and strong, the legs rather short, the feet like those of a duck, but furnished with strong and long claws, its bill is long of a good inch and a half, curved, pointed, extremely hard and strong; it has large eyes near the top of the head, which serve them admirably well during the night, but are nearly useless in the daytime, as they cannot endure the light nor discern objects, for when it is surprised by the day outside of its retreat, it knocks against anything with which it comes in contact and finally it falls to the ground.

“These birds live on fish which they procure during the night at sea; when through with their fishing, they return to the mountain, where they take to their holes like rabbits, and until night has come again do not return to the sea. The flesh is blackish with a little scent of fish, otherwise it is good and very nourishing.

“It begins to appear towards the end of September. They are then found in pairs in each hole. They remain until the end of November, when they disappear.”

He gives a very full and particular account of the search after them, and says: “In spite of the dangers and inconveniences of this hunting, my curiosity tempted me to accompany five negroes.” They were assisted in finding the birds by dogs, and each hunter carried a pole seven or eight feet long with a hook at the end. They procured about two hundred birds; such numbers being obtained, easily accounts for their extermination.

NOTE ON *Zenaida rubripes*.

I avail myself of this opportunity to correct an error which occurred in the ‘Catalogue’ of Grenada Birds.* I received from Mr. Wells a male of *Zenaida rubripes* after I had finished writing the catalogue. The account of its receipt and description was written on a slip of paper to be inserted in the catalogue in its proper place, but by inadvertence it was put under *Engyptila wellsi*, p. 625, instead of under *Zenaida rubripes*, p. 624.

* Proc. U. S. Nat. Mus. Vol. IX, 1886, p. 625.

BIRDS OF CARROLL COUNTY, INDIANA.

BY BARTON W. EVERMANN.

[*Concluded from Vol. V, p. 351.*]

73. *Coccyzus americanus*. YELLOW-BILLED CUCKOO. — A common summer resident, arriving about the middle of May. Fresh eggs June 30, 1885.

74. *Coccyzus erythrophthalmus*. BLACK-BILLED CUCKOO. — A common summer resident. Until 1884, the Black-billed seemed quite rare, but since then it has appeared to be more abundant than the Yellow-billed.

75. *Ceryle alcyon*. KINGFISHER. — A common summer resident, coming early, and remaining late in the autumn. A set of six eggs taken May 18, in which incubation had proceeded perhaps a week.

76. *Dryobates villosus*. HAIRY WOODPECKER.

77. *Dryobates pubescens*. DOWNY WOODPECKER. — These two familiar Woodpeckers are common residents of the County.

78. *Sphyrapicus varius*. YELLOW-BELLIED SAPSUCKER. — A rather rare resident, most common in the spring. I have specimens obtained December 15, 1884, and January 11, 1885.

79. *Ceophloeus pileatus*. PILEATED WOODPECKER. — Formerly a not uncommon resident, but I have seen none in the County for several years, and I have no doubt they have left it permanently.

80. *Melanerpes erythrocephalus*. RED-HEADED WOODPECKER. — Our most abundant Woodpecker, usually going south in the autumn, but frequently remaining with us all winter. This it did during the winter of 1881-82 in great numbers. I saw one in the southern part of the County, January 14, 1888.

81. *Melanerpes carolinus*. RED-BELLIED WOODPECKER. — A common resident, about as abundant in winter as in summer.

82. *Colaptes auratus*. 'YELLOWHAMMER.' — An abundant resident and one of our most valuable birds. Full sets of eggs may be found by May 4. In May and June, 1885, I obtained thirty-seven eggs in forty-nine days from a 'Yellowhammer' which had its nest near my house. The eggs were in seven sets, five, five, five, six, seven, four, and five eggs respectively.*

83. *Antrostomus vociferus*. WHIP-POOR-WILL. — Not uncommon as a summer resident, arriving from April 20 to May 1.

84. *Chordeiles virginianus*. NIGHTHAWK. — An abundant migrant, especially noticeable in the autumn.

85. *Chætura pelagica*. CHIMNEY SWIFT. — An abundant summer resident, arriving about the last week in April. April 27, 1884. As an instance of

*See Davie's 'Nests and Eggs of N. A. Birds,' p. 90.

peculiar nidification of this species I would mention the following. A pair fastened their nest in 1884 upon the inside of the door of an out-house at the Vandalia depot in Camden. The birds entered the building through small holes made in the gables. This building was in daily use, but those who visited it were cautioned by the railroad agent to open the door with care so as not to jar the eggs from the nest. Four eggs were laid, one of which was jostled from the nest, the other three hatched, and the young were reared in safety. The nest was repaired and used again in 1885, and again in 1886, a brood being reared each season. Mr. R. S. Phipps, the Vandalia agent, informs me that the nest was not used in 1887.

86. *Trochilus colubris*. HUMMINGBIRD. — A common summer resident, arriving about May 8.

87. *Tyrannus tyrannus*. KINGBIRD. — The Kingbird is an abundant summer resident. It is first seen in the spring about the last of April. April 29, 1883; April 30, 1884; April 22, 1885.

88. *Myiarchus crinitus*. CRESTED FLYCATCHER. — A common summer resident. Arrives about the last of April. May 3, 1883; April 28, 1884; April 28, 1885.

89. *Sayornis phœbe*. PEWEE. — A common and familiar summer resident. First appears about the middle of March. March 17, 1884; March 31, 1885. Building by March 26, 1884.

90. *Contopus virens*. WOOD PEWEE. — Summer resident; common. Comes about April 24. Nest found June 18.

91. *Empidonax flaviventris*. YELLOW-BELLIED FLYCATCHER. — A rare migrant.

92. *Empidonax acadicus*. ACADIAN FLYCATCHER. — This little bird is an abundant summer resident, arrives about May 15, and has full sets of eggs by June 15. This is one of the most frequent victims of the Cowbird.

93. *Empidonax pusillus traillii*. TRAILL'S FLYCATCHER. — Rare; probably a summer resident. June 10, 1885.

94. *Empidonax minimus*. LEAST FLYCATCHER. — Summer resident, but not common.

95. *Otocoris alpestris praticola*. PRAIRIE HORNED LARK. — Up to 1879, very rare; since then becoming more common every year, until it is now a common resident, most abundant, however, in winter and early spring.

96. *Cyanocitta cristata*. BLUE JAY. — An abundant resident, beginning to nest as early as April 10.

97. *Corvus corax sinuatus*. AMERICAN RAVEN. — The Raven was at one time a common resident, but now seems to have entirely disappeared.

98. *Corvus americanus*. AMERICAN CROW. — An abundant resident. Nest with three eggs April 16.

99. *Dolichonyx oryzivorus*. BOBOLINK. — A rare spring migrant. Not noticed until 1883. May 6, 1883 and 1884.

100. *Molothrus ater*. COWBIRD. — An abundant summer resident, arriving about March 31. Among the victims of the Cowbird's parasitic

habit I have noticed the following:—Cardinal Grosbeak, Towhee, Red-eyed Vireo, Scarlet Tanager, Wood Thrush, Acadian Flycatcher, Indigo Bunting, Oven-bird, Worm-eating Warbler, Summer Yellowbird, Warbling Vireo, and Maryland Yellowthroat.

101. *Agelaius phoeniceus*. RED-WINGED BLACKBIRD.—In suitable places, this is one of our most abundant summer residents. Returns from the south as early as February 12.

102. *Sturnella magna*. MEADOWLARK.—An abundant summer resident, from the middle of March to late in October. Occasionally a few remain all winter.

103. *Icterus spurius*. ORCHARD ORIOLE.—From the last of April to September a common resident, growing more abundant of late years.

104. *Icterus galbula*. BALTIMORE ORIOLE.—Summer resident, somewhat more common than the last. Arrives about April 24.

105. *Scolecophagus carolinus*. RUSTY BLACKBIRD.—Spring and autumn migrant, but not often seen.

106. *Quiscalus quiscula æneus*. BRONZED GRACKLE.—A very abundant summer resident, returning from the south about March 15 and remaining until quite late in the autumn.

107. *Carpodacus purpureus*. PURPLE FINCH.—Frequently seen late in the autumn and early in the spring;—probably a winter resident. October 12 and 19, 1878; January 25, 1879; April 22, 1884.

108. *Loxia curvirostra minor*. AMERICAN CROSSBILL.—An irregular winter visitant. Not noticed in the County until about the middle of March, 1883, when a few were seen near Delphi. About a dozen were seen in the evergreens in the Court-yard in Delphi December 26, 1884. Four or five were seen in Camden, March 27, 1885, another April 13, and a large flock heard flying northward over Burlington, April 23, 1885.

109. *Loxia leucoptera*. WHITE-WINGED CROSSBILL.—A very rare winter visitor. I saw a single female at Burlington, March 8, 1885, and killed it with a stick. Several others had been seen a few days before in the same place. Some were caught in a trap, but were let go again. Another female was seen at Camden, March 16, 1885. These, together with my records of its appearance at Bloomington, February 6, 10, and 23, 1883, and Mr. F. M. Noc's Indianapolis record of about the same date, are, as far as I am informed, the only records of the occurrence of the White-winged Crossbill in Indiana.

110. *Acanthis linaria*. REDPOLL.—My only record of the occurrence of this species in Carroll County is that of a fine male which I shot at Camden, November 5, 1878. I saw another at Bloomington, December, 1882. These are the only records I have for Indiana.

111. *Spinus tristis*. AMERICAN GOLDFINCH.—Resident, abundant during the summer.

112. *Spinus pinus*. PINE SISKIN.—A rare winter visitant.

113. *Plectrophenax nivalis*. SNOWFLAKE.—A rare winter visitant. My record of its occurrence in Carroll County shows:—January 15, 1884, saw two (♂ and ♀) near Pittsburg, both of which I got: January —, 1885,

two seen in the eastern part of the County; January —, 1885, a large flock seen in the eastern part of the County by Mr. J. C. Trent; February 13, 1885, three seen near Camden, two of which I got; February 23 and 24, 1885, two or three seen in the northwestern part of the County, two of which I secured.

114. *Pooecætes gramineus*. VESPER SPARROW.—An abundant summer resident, arriving last of March.

115. *Ammodramus sandwichensis savanna*. SAVANNA SPARROW.—Migrant, not common.

116. *Ammodramus savannarum passerinus*. GRASSHOPPER SPARROW.—A very rare summer resident.

117. *Chondestes grammacus*. LARK FINCH. Until recently very rare, but now getting to be a rather common summer resident.

118. *Zonotrichia leucophrys*. WHITE-CROWNED SPARROW.—An abundant migrant in March and April, and September and October.

119. *Zonotrichia albicollis*. WHITE-THROATED SPARROW.—With the last an abundant migrant.

120. *Spizella monticola*. TREE SPARROW.—A common winter resident.

121. *Spizella socialis*. CHIPPING SPARROW.—A common summer resident.

122. *Spizella pusilla*. FIELD SPARROW.—Common summer resident.

123. *Junco hyemalis*. SLATE-COLORED JUNCO.—An abundant winter resident. Appears about the middle of October.

124. *Melospiza fasciata*. SONG SPARROW.—An abundant summer resident, and a few remain all winter.

125. *Melospiza lincolni*. LINCOLN'S SPARROW.—A very rare migrant.

126. *Melospiza georgiana*. SWAMP SPARROW.—A rare migrant.

127. *Passerella iliaca*. FOX SPARROW.—A common early migrant. March 30, 1884; March 18, 1880.

128. *Pipilo erythrophthalmus*. TOWHEE.—An abundant summer resident. I do not think any ever remain all winter. March 19, 1884; March 26, 1885.

129. *Cardinalis cardinalis*. CARDINAL.—A common resident.

130. *Habia ludoviciana*. ROSE-BREASTED GROSBEAK.—Summer resident, not very common. Most common during the migrations. May 5, 1884.

131. *Passerina cyanea*. INDIGO BUNTING.—A common summer resident.

132. *Spiza americana*. DICKCISSEL.—Common summer resident, growing more common each year.

133. *Piranga erythromelas*. SCARLET TANAGER.—A common summer resident, arriving about May 5, 1884; April 23, 1885.

134. *Progne subis*. PURPLE MARTIN.—A common summer resident. Arrives from the south as early as March 28.

135. *Petrochelidon lunifrons*. CLIFF SWALLOW.—This Swallow is an abundant summer resident. April 18, 1884.

136. *Chelidon erythrogaster*. BARN SWALLOW. — This is also abundant during the breeding season. April 24, 1884; April 16, 1885.

137. *Tachycineta bicolor*. TREE SWALLOW. — Migrant, not very common.

138. *Clivicola riparia*. BANK SWALLOW. — An abundant summer resident. April 6, 1884; April 8, 1885.

139. *Stelgidopteryx serripennis*. ROUGH-WINGED SWALLOW. — Summer resident, but less common than the preceding.

140. *Ampelis garrulus*. BOHEMIAN WAXWING. — I remember seeing a flock of half a dozen Waxwings on the cedar trees in my father's yard several years ago when I was a boy, which I felt sure were not the common Cedarbird with which I was quite familiar. I did not know at the time what they were, but I am now certain they were Bohemian Waxwings. They were seen in winter when there was a very heavy snow.

141. *Ampelis cedrorum*. CEDAR WAXWING. — A tolerably common summer resident.

142. *Lanius borealis*. NORTHERN SHRIKE. — Apparently a rare winter visitor. I have a fine male which I shot near Camden, January 19, 1884. I saw another January 8, of the same year.

143. *Lanius ludovicianus excubitorides*. WHITE-RUMPED SHRIKE. — Until recently a very rare resident, becoming more common since 1882. Seen oftenest along the hedges in the western (prairie) part of the County. Set of six eggs taken west of Pittsburg, May 10, 1884.

144. *Vireo olivaceus*. RED-EYED VIREO. — An abundant summer resident. Returned from the south May 5, 1884; May 4, 1885.

145. *Vireo philadelphicus*. PHILADELPHIA VIREO. — A rare summer resident.

146. *Vireo gilvus*. WARBLING VIREO. — A rather common summer resident. May 2, 1884; May 6, 1885.

147. *Vireo flavifrons*. YELLOW-THROATED VIREO. — A common migrant. May 5, 1884.

148. *Vireo solitarius*. BLUE-HEADED VIREO. — A common migrant. May 10, 1884.

149. *Mniotilta varia*. BLACK-AND-WHITE WARBLER. — A very rare summer resident, but common during the migrations. April 26, 1885.

150. *Protonotaria citrea*. PROTHONOTARY WARBLER. — A rare summer resident. I have seen it at but two places in the County, — one near Camden, and the other in the Maple Swamp already mentioned in connection with the Great Blue Heron.

I first met with this delightful Warbler during my visit to this swamp May 21, 1883. It seemed to be the height of the breeding season, several pairs of birds were seen, and five nests of nice fresh eggs were secured. Another visit was made to the swamp May 21, 1885. Several unfinished nests were found, but laying had not yet begun. A number of Prothonotaries were seen chasing about, across and around the open spaces among the trees. The males were in full song, and I do not remember to have witnessed anything in bird-life more beautiful and interesting.*

*See 'Ornithologist and Oölogist' for July, 1886.

On May 7, 1885, I saw a single male in a small swamp near Camden. It is now in my collection. This seems to be a very rare species in Indiana, and its distribution in the State a little peculiar. As far as I know it has been noted only at points near the Wabash River.

151. *Helminthophila pinus*. BLUE-WINGED WARBLER.—A rather rare summer resident. I saw a nest of young just able to fly in July, 1879. Specimens taken May 4, 6, 11, and 21, 1885, and May 10, 1884.

152. *Helminthophila chrysoptera*. GOLDEN-WINGED WARBLER.—One specimen shot near Camden, May 6, 1885, is the only one I have seen in the County.

153. *Helminthophila ruficapilla*. NASHVILLE WARBLER.—A common migrant. Common May 4-7, 1885.

154. *Helminthophila peregrina*. TENNESSEE WARBLER.—Migrant, usually less common than the preceding species. May 22, 1883. Very common May 14-19, 1885.

155. *Compsothlypis americana*. PARULA WARBLER.—A common migrant,—especially in spring of 1885, from May 4 to May 10.

156. *Dendroica tigrina*. CAPE MAY WARBLER.—Not a very common migrant. May 22, 1883; May 12, 1884; May 8-14, 1885.

157. *Dendroica æstiva*. YELLOW WARBLER.—Summer resident, not common. May 8, 1884; May 4 and 9, 1885.

158. *Dendroica cærulescens*. BLACK-THROATED BLUE WARBLER.—Migrant, a few seen almost every spring. May 7, 1884; May 5, 1885.

159. *Dendroica coronata*. MYRTLE WARBLER.—This is perhaps the most abundant Warbler during the migrations. It is the first to arrive in the spring and remains latest in the autumn. April 30, 1878; May 22, 1883; April 20, 1884; April 15, 1885; October 5, 1878. At Bloomington, Indiana, this Warbler is a rare winter resident.

160. *Dendroica maculosa*. MAGNOLIA WARBLER.—A common migrant. May 4, 1878; May 24, 1883; May 7, 1884; May 7, 12, and 18, 1885.

161. *Dendroica cærulea*. CERULEAN WARBLER.—A common summer resident, but most abundant during the migrations. May 21, 1883; May 5, 1884; May 6, 1885.

162. *Dendroica pennsylvanica*. CHESTNUT-SIDED WARBLER.—Common migrant. May 22, 1883; May 7, 1884; May 4, 1885.

163. *Dendroica castanea*. BAY-BREASTED WARBLER.—Tolerably common migrant. May 4, 1878; May 22, 1883; May 5, 1884; May 5, 1885. Very common from May 5 to May 20, 1885.

164. *Dendroica striata*. BLACKPOLL WARBLER.—A rather common migrant. May 21, 1883; May 21, 1885. More common some seasons than others.

165. *Dendroica blackburniæ*. BLACKBURNIAN WARBLER.—One of the less common Warblers in this State. May 24, 1883; April 28, 1885.

166. *Dendroica dominica albilora*. SYCAMORE WARBLER.—Summer resident, but not often seen. May 9, 1883; April 20, 1884; April 23, 1885.

167. *Dendroica virens*. BLACK-THROATED GREEN WARBLER.—A com-

mon migrant. May 3, 1883; May 5, 1884; April 28, 1885,—common until May 12.

168. *Dendroica vigosii*. PINE WARBLER.—A rare migrant. A pair which I shot near Camden April 29, 1885, are the only ones I ever saw in the County.

169. *Dendroica palmarum*. PALM WARBLER.—A rather common spring migrant in some parts of the County. May 3, 1878; May 8, 1884; April 21, 1885. I have never noted it in the autumn.

170. *Seiurus aurocapillus*. OVEN-BIRD.—A common summer resident. May 4, 1885. Nest with full complement of eggs May 28, 1883.

171. *Seiurus noveboracensis*. WATER-THRUSH.—A rare migrant, possibly breeds here.

172. *Seiurus motacilla*. LOUISIANA WATER-THRUSH.—A rather rare summer resident. May 6, 1885; July, 1881.

173. *Geothlypis formosa*. KENTUCKY WARBLER.—Probably a rare summer resident.

174. *Geothlypis agilis*. CONNECTICUT WARBLER.—A rare migrant. May 21, 1883; May 21, 1885.

175. *Geothlypis philadelphia*. MOURNING WARBLER.—With the last a rare migrant. May 21, 1885.

176. *Geothlypis trichas*. MARYLAND YELLOWTHROAT.—A common summer resident. May 11, 1878; May 5, 1884; April 24, 1885. Found nest with five fresh eggs May 22, 1883. Saw young able to fly June 12, of same year.

177. *Icteria virens*. YELLOW-BREASTED CHAT. Summer resident, but rather rare. Not seen prior to May 8, 1883, when I saw a pair or two near Burlington. In the summer of 1884 I saw them again in the same locality and another pair near Camden; another pair was found nesting near the Tippecanoe River in the western part of the County, May 5, 1885.

178. *Sylvania mitrata*. HOODED WARBLER.—Not very common migrant. Several seen May 5-18, 1885, near Camden.

179. *Sylvania pusilla*. WILSON'S WARBLER.—One killed near Camden, May 18, 1885, is the only specimen I have seen in the County.

180. *Sylvania canadensis*. CANADIAN WARBLER. Rather rare migrant. Took two near Burlington, May 24, 1883; several others obtained May 12-18, 1885, near Camden.

181. *Setophaga ruticilla*. AMERICAN REDSTART.—A common summer resident, apparently growing less common. May 3, 1883; May 6, 1884; May 4 and 6, 1885; nest and eggs June 13, 1883.

182. *Anthus pensilvanicus*. AMERICAN PIPIT.—A very rare migrant I saw a dozen or more March 19, 1879, while the snow still lay upon the ground. They were along the water's edge on Deer Creek above Camden. These are the only ones I have ever seen in the County.

183. *Galeoscoptes carolinensis*. CATBIRD.—As elsewhere east of the Mississippi, one of the most common and familiar birds. May 3, 1883; April 27, 1884; April 23, 1885. Full sets of eggs are to be found usually by May 21.

184. *Harporhynchus rufus*. BROWN THRASHER.—This is also a common and well-known summer resident, returning from the south about the first of April. April 3, 1884. Full clutches of eggs May 4, 1885.

185. *Thryothorus ludovicianus*. CAROLINA WREN.—A rare resident, but apparently becoming more common from year to year. I do not remember to have seen this Wren until 1877, and from then up to 1879, I regarded it as a very rare bird. But in 1883-85 it seemed very much more common. October 10 and November 16, 1877; February 27, 1879; February 8 and 24, 1884.

186. *Troglodytes ædon*. HOUSE WREN.—A tolerably common summer resident. In 1884, first seen April 28; common next day. In 1885, it returned just a week earlier.

187. *Troglodytes hiemalis*. WINTER WREN.—A rather rare resident, most frequently seen in winter; but I am quite certain it breeds here.

188. *Cistothorus palustris*. LONG-BILLED MARSH WREN.—A spring and autumn migrant, apparently quite rare.

189. *Certhia familiaris americana*. BROWN CREEPER.—Winter resident except for a few weeks in midwinter when it goes further south. Not very often seen. February 1 and 15, 1879; April 6 and 23, 1884; April 9, 1885.

190. *Sitta carolinensis*. WHITE-BREASTED NUTHATCH.—A common permanent resident.

191. *Sitta canadensis*. RED-BREASTED NUTHATCH.—I think this may be regarded as a rare resident. In August, 1878, I saw some three or four young near Burlington just able to fly. May 3, 1883, I saw one, and another on May 7, 1885.

192. *Parus bicolor*. TUFTED TITMOUSE.—One of our most common permanent residents.

193. *Parus atricapillus*. CHICKADEE.—A permanent resident, more common than the next.

194. *Parus carolinensis*. CAROLINA CHICKADEE.—Permanent resident, but not common.

195. *Regulus satrapa*. GOLDEN-CROWNED KINGLET.—Migrant late in the autumn and early in the spring,—probably a few remain all winter. April 9, 1885; November, 1877.

196. *Regulus calendula*. RUBY-CROWNED KINGLET.—With the preceding, a tolerably common migrant. October 5, 1878.

197. *Poliophtila cærulea*. BLUE-GRAY GNATCATCHER.—A somewhat common summer resident. April 23, 1884; April 22, 1885. Full sets of eggs obtained May 17 from two nests which I saw the birds begin building May 5. I think from what I could see without climbing to the nests each day, that they were completed on the 12th and the first egg laid in each on that day.

198. *Turdus mustelinus*. WOOD THRUSH.—An abundant and delightful summer resident. May 3, 1883; April 28, 1884; April 23, 1885. Full sets of eggs June 17, 1882; May 24, 1883.

199. *Turdus fuscescens*. WILSON'S THRUSH.—Spring and autumn migrant, not very common. April 9, 1885, especially common.

200. *Turdus ustulatus swainsoni*. OLIVE-BACKED THRUSH.—Migrant with the last, not common.

201. *Turdus aonalaschkæ pallasii*. HERMIT THRUSH.—With the last a tolerably common migrant. October 5, 1878; March 30, 1884.

202. *Merula migratoria*. AMERICAN ROBIN.—One of our commonest and best known summer residents,—leaving so late in the autumn and returning so early in the spring as to almost appear a permanent resident. Our January or February 'thaw' seldom fails to bring a few back to us. I desire to call attention to a nesting habit of the Robin which is spoken of in the books as "unusual," that is the habit of constructing their nest upon a rail in the fence. This I have from childhood noticed to be a very common place for the Robin to put its nest. A place near the end of the rail where it is crossed by those of the next panel is usually selected, and generally about the fifth from the ground in an eight-rail fence. I have frequently known the same old nest to be repaired and used for two or even three years.

203. *Sialia sialis*. BLUEBIRD.—A common summer resident; a few probably remain in sheltered places throughout the winter. February 12, 1884; March 7, 1885. Until within the last ten years nearly every cleared field in this part of Indiana contained the stumps of the many trees that had been felled in clearing the land. Many of these stumps contained small hollows from three to six inches in diameter, and from one to two or three feet deep. As long as the stumps remained, these hollows were a favorite nesting place for the Bluebirds. But now that the stumps have been removed, the Bluebirds have betaken themselves to deserted woodpecker holes in trees, or to rotten fence posts.

A LIST OF THE BIRDS COLLECTED BY MR. C. J. MAYNARD IN THE ISLANDS OF LITTLE CAYMAN AND CAYMAN BRACK, WEST INDIES.

BY CHARLES B. CORY.

THE AVIFAUNA of the Islands of Little Cayman and Cayman Brack is apparently quite different from that of Grand Cayman. Only five of the resident species of Grand Cayman appear to be found in either of the smaller islands. No *Centurus* or *Icterus* occurs on either Little Cayman or Cayman Brack, and the *Mimocichla* instead of being *ravida* seems to be the Cuban form, *M. rubripes*. Several Cuban species occur in Cayman Brack and

Little Cayman which have not been observed on Grand Cayman, notably the *Mimocichla* already mentioned, *Quiscalus gundlachi* and *Chrysotis leucocephala*.

LITTLE CAYMAN.

Dendroica palmarum (Gmel.).
Dendroica discolor (Vieill.).
Dendroica vittellina Cory.
Dendroica cærulescens (Gmel.).
Dendroica aurocapilla (Ridgw.).
Geothlypis trichas (Linn.).
Certhiola sharpei Cory.
Vireo caymanensis Cory.
Ampelis cedrorum Vieill.
Euetheia olivacea (Gmel.).
Dolichonyx oryzivorus (Linn.).
Elainea martinica (Linn.).
Tyrannus dominicensis (Gmel.).
Actitis macularia (Linn.).
Sula cyanops (Sundev.).

CAYMAN BRACK.

Mimocichla rubripes (Temm.).
Galeoscoptes carolinensis (Linn.).
Dendroica palmarum (Gmel.).
Dendroica discolor (Vieill.).
Dendroica vittellina Cory.
Helmitherus vermivorus (Gmel.).
Compsothlypis americana (Linn.).
Seiurus noveboracensis (Gmel.).
Seiurus aurocapillus (Linn.).
Setophaga ruticilla (Linn.).
Certhiola sharpei Cory.
Chelidon erythrogaster (Bodd.).
Vireo alleni Cory.
Vireo caymanensis Cory.
Euetheia olivacea (Gmel.).
Quiscalus gundlachi Cass.
Elainea martinica (Linn.).

Pitangus caudifasciatus (*D'Orb.*).
Tyrannus dominicensis (*Gmel.*).
Crotophaga ani (*Linn.*).
Chrysotis leucocephala (*Linn.*).
Columba leucocephala *Linn.*
Columbigallina passerina (*Linn.*).
Zenaida amabilis *Bonap.*
Actitis macularia (*Linn.*).
Arenaria interpres (*Linn.*).
Ægialitis semipalmata (*Bonap.*).
Ardea virescens (*Linn.*).
Sula cyanops *Sundev.*

NOTES ON THE HABITS, NESTS, AND EGGS OF
DENDRAGAPUS OBSCURUS FULIGINOSUS, THE SOOTY GROUSE.

BY CAPT. CHARLES E. BENDIRE.

THE SOOTY GROUSE, better known on the Pacific coast, however, under the names of Blue Grouse and Pine Hen, has a wide range of distribution. Ridgway, in his 'Manual of North American Birds,' gives its habitat as "Mountains near Pacific coast from California to Sitka, Alaska." It is found, however, equally abundant in suitable localities throughout the entire interior mountain system of the Northwest, as far east at least as the western spurs of the Bitter Root Range of Montana, fully 800 miles from the sea-coast, throughout the entire Blue Mountain and Cascade Ranges of Oregon, as well as through the mountains of Washington and Idaho Territories, and northern Nevada. These birds from the interior, beginning from the eastern foot-hills of the Cascade Range (vicinity of Fort Klamath, Oregon), and throughout the remaining localities mentioned, are, however, much lighter and paler colored than the type specimens of *D. obscurus fuliginosus* Ridgway, which were obtained in the vicinity of Sitka, Alaska, but are nevertheless referable to this form rather than to *D. obscurus* (Say).

I have met with the Sooty Grouse in all the above-mentioned localities in the Northwest, and have had excellent opportunities to observe their habits. As a game bird, considered from a sportsman's point of view, it has no peer, and its flesh, in gastro-nomic value, is of an equal order of excellence. Although a resident throughout the year, wherever found, the Sooty Grouse is seldom seen during the winter months, spending almost the entire time in the tops of tall, bushy fir and pine trees, which it leaves only for a short time about the middle of the day to procure water from some little mountain spring.

Their presence in a tree selected by these birds as a roosting and budding place can, however, be readily detected by a close observer, especially when the ground, as it almost invariably is at that time of the year, is covered with a foot or two of snow. The food of the Sooty Grouse during the entire winter consists almost exclusively of the buds and tender tops of the pine and fir branches, as well as of fully grown pine needles. In picking these off, a certain amount is usually rejected, or dropped by accident, and I have seen fully a bushel or more scattered about the base of a single tree, which I attributed at first to the work of squirrels, till I found out otherwise. The use of such food imparts to the flesh of these birds at this season a strong, resinous flavor, not particularly relished by me at first. After finding such a tree used as a roosting place, it still remained to locate the birds, which generally proved to be a more difficult matter than one would anticipate. When they found themselves discovered they would usually remain perfectly motionless, and it was no easy matter to see a bird among the dense branches. If sitting on a good-sized limb, they would crouch lengthwise on it, leaving very little of their body exposed to view from below, and if one went off some little distance the foliage of the lower limbs would hide the bird equally effectively. Single families only are found together during the winter, say from eight to twelve birds, and frequently but two or three. I have scarcely ever seen larger packs together at any time. They certainly do not pack in the late autumn in the manner of Sage Fowl (*Centrocercus urophasianus*) and Sharp-tailed Grouse (*Pediocætes phasianellus columbianus*), both of these species having been observed by me on more than one occasion in packs numbering over a hundred.

I first met with the Sooty Grouse on Craig's Mountain near

Fort Lapwai, Idaho, on the Nez Percé Indian Reservation, and was told by both trappers and Indians that these birds did not remain there during the winter, in which belief I consequently shared at that time. I was also told that when a covey had been located in a tree, by being careful always to shoot the bird sitting lowest, the whole lot might be secured successfully. This may be so, but somehow it always failed with me; usually after the second shot, often even after the first, and certainly after the third, the remaining birds took wing, and generally flew quite a distance before alighting again, nearly always placing a deep cañon between themselves and me.

At Fort Lapwai, Idaho, in the early fall of 1870 and of 1871, on two or three occasions I found a few of these birds mixed in and feeding with large packs of the Sharp-tailed Grouse. This must, however, be considered as an unusual behavior, as I never noticed it anywhere else subsequently, although both species were equally abundant in other localities where I met them frequently in after years. The favorite locations to look for the Sooty Grouse during the spring and summer are the sunny, upper parts of the foothills, bordering on the heavier timbered portions of the mountains, among the scattered pines and the various berry-bearing bushes found in such situations and along the sides of cañons. According to my observations these birds are scarcely ever found any distance within the really heavy timber. In the middle of the day they can usually be looked for with success amongst the deciduous trees and shrubbery found along the mountain streams in cañons, especially if there is an occasional pine or fir tree mixed amongst the former. The cocks separate from the hens after incubation has commenced, I believe, and keep in little companies, say from four to six, by themselves, joining the young broods again in the early fall. At any rate I have more than once come on several cocks in June and July, without seeing a single hen amongst them. High rocky points near the edges of the main timber, amongst juniper and mountain mahogany thickets, are their favorite abiding-places at that time of year. The young chicks are kept by the hen for the first week or two in close proximity to the place where they were hatched, and not till they have attained two weeks' growth will they be found along the willows and thickets bordering the mountain streams. Their food consists at first, principally of grasshoppers, insects, and tender plant tops,

and later in the season of various species of berries found then in abundance everywhere, as well as the seeds of a species of wild sunflower, of which they seem to be very fond. It is astonishing how soon the young chicks learn to fly, and well, too, and how quickly they can hide and scatter at the first alarm note of the mother bird which invariably tries by various devices to draw the attention of the intruder to itself and away from its young. A comparatively small leaf, a bunch of grass, anything in fact will answer their purpose; you will scarcely be able to notice them before they are all securely hidden, and unless you should have a well-trained dog to assist you, the chances are that you would fail to find a single one, even when the immediate surroundings were open. After the young broods are about half grown, they spend the greater portion of the day, and, I believe, the night as well, among the shrubbery in the creek bottoms, feeding along the side hills in the early hours of the morning and evening. During the heat of the day they keep close to the water, in shady trees and the heavy undergrowth. They walk to their feeding grounds, but in going to water they usually fly down from the side hills.

The love note of the cock has a very peculiar sound, hard to describe. It can be heard at almost any hour of the day in the spring, often in the beginning of March when there is still plenty of snow to be found, and it is kept up till well into the month of May. It is known as hooting or booming. The cocks when engaged in this amusement may be found perched on horizontal limbs of large pine or fir trees, with their air-sacks inflated to the utmost, wings drooping and the tail expanded. They present then a very ludicrous appearance, especially about the head. When at rest, these air-sacks, of a pale orange yellow color in the spring, are only noticeable by separating the feathers on the neck and upper parts of the breast, but when inflated they are the size of a medium orange and somewhat resemble one cut in halves. This call is repeated several times in rapid succession, decreasing in volume gradually, but can at any time be heard at quite a distance. It appears to be produced by the sudden forcing of a portion of the air in the sack quickly through the throat, and is quite misleading as to the exact locality where uttered, the birds being expert ventriloquists. I have frequently hunted in vain to locate one while so engaged where there were but a few trees in the vicinity; and although I searched each one through carefully

and with a powerful field glass to assist me, I had to give it up, completely baffled.

It is beyond me to describe this love call accurately. Some naturalists state that it resembles the sound made by blowing into the bung-hole of an empty barrel, others find a resemblance to the cooing of a pigeon and some to the noise made by whirring a rattan cane rapidly through the air. The latter sound comes in my opinion nearer to it than anything else. The closest approach to it I can give in letters, is a deep, guttural *muhum*, the first letter scarcely sounded.

The accounts of the nesting habits of the Sooty Grouse are somewhat vague, the number of eggs to a set being variously given as from eight to fifteen. I have personally examined quite a number of the nests of this Grouse between May 6, 1871, and June 25, 1883. The largest number of eggs found by me in a set was ten, in two instances, three sets contained nine each, seven sets contained eight each, and five sets seven eggs or less, the latter probably incomplete, although some of these sets of eggs were advanced in incubation. I think that eight eggs is the ordinary number laid by these birds.

Eggs may be looked for from April 15 to the latter part of May, according to altitude. The earliest date on which I obtained eggs of this Grouse was April 18, 1877, when a set was found by Lieut. G. R. Bacon, 1st Cavalry, containing seven fresh specimens. This nest was placed in a willow bush growing under a solitary pine tree, in a small ravine, five miles northwest of Camp Harney, Oregon. This nest was composed entirely of dry pine needles, picked up in the immediate vicinity.

A nest found by me April 22, 1877, about four miles west of Camp Harney, was placed under the roots of a fallen juniper tree, in a grove of the same species, growing on an elevated plateau close to the pine belt. This nest was well hidden, a mere depression in the ground, and composed of dry grasses, a few feathers from the bird's breast, and dry pine needles. The nine eggs were about half way imbedded in this mass, and nearly fresh.

As a rule, most of the nests found by me were placed in similar situations under old logs or the roots of fallen trees, and generally fairly well hidden from view, and amongst the more open pine timber along the outskirts of the forest proper. Occasionally, however, a nest may be found some little distance from

timber and in the lower parts of mountain valleys. I found such a nest on April 26, 1878, amongst some tall rye-grass bushes, in a comparatively open place and within a yard of Cow Creek, a small mountain stream about four miles east of Camp Harney. There was no timber of any size, only small willow bushes, within two miles of this nest. The nest was placed partly under one of these rye-grass bushes, and the bird sat so close that I actually stepped partly on her and broke two of the eggs in doing so. This nest contained eight slightly incubated eggs. It was composed of dead grass and a few feathers.

The most exposed nest, without any attempt at concealment whatever, that came under my observation, I found on June 8, 1876, on the northern slope and near the summit of the Cañon City Mountain, in Grant Co., Oregon, at an altitude of about 6800 feet. I was returning from escort duty to Cañon City and sent the party with me around by the stage road which wound in zigzag turns up the steep mountain, myself and one of my men taking a much shorter but far steeper Indian trail which intersected the wagon road again on the summit.

Near this intersecting point the trail passed through a beautiful oval-shaped mountain meadow of about an acre in extent, and near the summit of which stood a solitary young fir tree. No other trees were growing nearer than thirty yards from this one. The meadow itself was covered with a luxurious growth of short, crisp mountain grass and alpine flowers, altogether as lovely a spot to take a rest in as could well be found. Arriving at this point, and knowing that the party would not be along for more than half an hour at least, I dismounted and unsaddled my horse to let him have a roll and a good chance at the sweet mountain grass, of both of which opportunities he was not slow in taking advantage. Throwing the saddle in the shade made by the little fir, I lay down to take a rest myself. I had a fine setter dog with me, who had been ranging along both sides of the trail and who came up wagging his tail just as I had settled myself comfortably. 'Rock,' my setter, had approached perhaps within two feet of me at a pretty brisk lope, when all of a sudden he came to an abrupt halt, fairly freezing and stiffening in his tracks, and made a dead point alongside of me. I could not understand at first what this all meant, even my horse thought it worth the while to stop eating, and with its ears pointed forward was looking in the same

direction. 'Rock' was fairly trembling with excitement, but kept to his point. Jumping up quickly, I looked to the right and rear, thinking that perhaps a rattlesnake might be coiled up in the grass, and saw at once the cause of my dog's strange behavior. It was only a poor Sooty Grouse sitting within three feet of me on her nest containing two chicks and seven eggs on the point of hatching. It was as touching a sight as I had ever seen, the poor bird, although nearly scared to death, with every feather pressed close to her body, and fairly within reach of the dog, still persisted in trying to hide her treasures; and her tender brown eyes looked entreatingly on us rude intruders, and if eyes can speak, hers certainly pleaded most eloquently for mercy. She let me almost touch her before she fluttered off the nest, feigning lameness, and disappeared in the neighboring undergrowth. Counting the eggs, and examining one of the young chicks which apparently had only left the shell a few minutes before, I at once vacated this vicinity and took up a position some fifty yards in an opposite direction from what the bird had taken, to watch further proceedings. The grass was so short that it did not hide the bird which, after perhaps ten minutes' waiting, came slowly creeping and crouching towards the nest and covered the eggs again. I did not disturb her further, and hope that, although her selection of a nesting site so thoroughly exposed was not judicious, she succeeded in rearing her brood in safety. None of the eggs in the nest touched each other; they were all about half covered or imbedded in the material out of which the nest was made—dry grass, pine and fir needles, and a few of the bird's feathers presumably plucked out by herself.

Incubation lasts about eighteen days. Females predominate in numbers. The weight of full grown cocks varies from two and a half to three pounds; I have never obtained one that weighed more. Hens weigh from one and three-quarters to two and a half pounds; the latter weight, however, is rare. Many of the young broods are fully grown by August 15. They afford excellent sport, lie well to a dog, often letting you almost step on them before taking wing, and are strong and swift flyers. Their ordinary note very much resembles the cackling of the domestic hen. The Indian name of the Sooty Grouse on the Northwest coast is *tyhee cullaw-cullaw*, chief bird.

As stated before, according to my own observation, the usual

numbers of eggs laid by the Sooty Grouse is about eight, and occasionally as many as ten are found in a set. Their ground color varies from a pale cream color to a creamy buff, the latter predominating; in a single set before me it is a pale cinnamon. The eggs are more or less spotted over their entire surface with fine dots of chocolate or chestnut brown; these spots vary considerably in size in different sets of eggs, ranging from the size of a No. 3 shot, to that of mustard seed. These markings are generally well rounded, regular in shape, and pretty evenly distributed over the entire egg. They never run into irregular and heavy blotches such as are frequently found in the eggs of the Canada Grouse (*Dendragapus canadensis*), which approach the pattern found amongst the eggs of the Willow Ptarmigan (*Lagopus lagopus*) much nearer than the former. In the eggs of the Sooty Grouse all these markings, as well as the overlying ground color, can be readily washed off when the eggs are still quite fresh, leaving the shell of the egg a very pale creamy white in reality. The largest egg in the series in the National Museum collection measures 2.08×1.35 inches; the smallest 1.78×1.28 inches. Average size about 1.86×1.31 inches. The shape of the majority of these eggs is ovate; some may be called short ovate and others elongate ovate. There is no perceptible difference between the eggs of the Sooty Grouse and those of *Dendragapus obscurus*, the Dusky Grouse, as well as those of *Dendragapus obscurus richardsonii*, Richardson's Grouse; their habits are also essentially the same.

ON THE SUMMER BIRDS OF BERKSHIRE COUNTY, MASSACHUSETTS.

BY WALTER FAXON.

DURING the summer of 1888 I spent a month (June 17 to July 16) in Berkshire, and made as complete lists as possible of the birds found in the extreme southern part of the county, and near the northern border, especially on the Saddle-Back or Graylock range of mountains. These lists, together with Mr. William

Brewster's* account of a nine days' exploration of the region about Graylock in June, 1883, will, I believe, give a fair notion of the summer Passerine birds of the County.

Southern Berkshire. Ten days were spent in Sheffield, a southern border town, whence excursions were made into the neighboring towns of Massachusetts and Connecticut. The village of Sheffield lies along the Housatonic River, 675 feet above the sea, in an alluvial interval, seven miles in breadth. The valley is abruptly closed on the west by the massive wall of the Taconic Mountains, which here culminate for southern Berkshire in the Dome, or Mount Everett, at 2624 feet. On the east the valley is bounded by the lower and less precipitous range of the Hoosacs. The valley of the Housatonic, trending north and south, like that of the Connecticut, has attracted several birds that give a distinctly southern cast to the fauna. I refer to the presence of such birds as the Yellow-breasted Chat and Orchard Oriole, and to the comparative abundance of the Grasshopper Sparrow, Mourning Dove, etc. The likeness to the avifauna of the Connecticut Valley at Springfield† is further shown by the rarity of the White-eyed Vireo, White-bellied Swallow, and Redstart, so common in the eastern counties of Massachusetts.

The mountains of southern Berkshire nowhere much exceed an altitude of 2600 feet, and are nearly destitute of spruce and fir. Their sides are for the most part clothed with a heavy second growth of chestnut, oak, birch, maple, etc. The loftiest summits are barren ledges of mica-schist and quartz, sparsely covered by low, prostrate pitch pines, gray birches, red oaks, scrub oaks, and mountain ashes. Such conditions of vegetation would doubtless attract but few Canadian birds, even if the height of the mountains were much greater than it is. Nevertheless, the presence of a few northern forms leaves a perceptible Canadian impress on the fauna of these mountains, when compared with that of the underlying valley. The Wood Thrushes of the valley are supplanted in a large measure by Hermit Thrushes. Nashville Warblers and Blue-headed Vireos, seldom seen in the low country, become tolerably common, while the dense undergrowth of moun-

*Notes on the Summer Birds of Berkshire County, Massachusetts. By William Brewster. *Auk*, I, Jan. 1884, pp. 5-16.

† Catalogue of the birds found at Springfield, Mass., etc. By J. A. Allen. *Proc. Essex Inst.*, IV, 1864.

tain laurel affords a congenial home to the Black-throated Blue and Canadian Warblers. Indeed I have nowhere found the former bird more abundant than in the mountains of southwestern Berkshire and northwestern Connecticut. On the highest mountain tops, such as the Dome of the Taconics and Bear Mountain,* the Snowbird breeds in company with the Hermit Thrush, Chestnut-sided and Nashville Warblers and Towhee. The Towhee is very common on all the barren summits of the Taconic range in southern Berkshire, much more so than in the valley below.

Northern Berkshire. During my stay in northern Berkshire, from June 28 to July 16, I lived at a farmhouse in the Notch Road, near the boundary line between North Adams and Adams. Most of the time spent here was devoted to exploring the Saddle-Back Mountains. By this name I designate the well-defined range midway between the Taconics and Hoosacs, which culminates in Graylock Peak in Adams, 3505 feet above the sea, the loftiest mountain in the State. A good carriage road was built in 1885 to the summit of Graylock. Leaving the Notch Road in North Adams, the way ascends for about a mile and a half through open pasture land, entering the forest on the northwestern flank of Mt. Williams, from which point it passes through an almost unbroken forest on the western side of the crest of the main ridge to the summit of Graylock, a distance of about four miles. After crossing Money Brook, nearly three miles from the summit (altitude, 2480 feet), the forest is the primeval growth of black spruce, with some admixture of yellow and canoe birch, sugar maple, etc., and, towards the summit, balsam fir. The Graylock turnpike has thus opened an easy path through the most interesting part of the Saddle-Back range, but ere long there will be reason to deplore the construction of this avenue which is to the lumberman only an invitation to strip the crest and western slope of the range. With the destruction of this forest some of the most interesting birds of the region will, doubtless, abandon Massachusetts as a breeding-ground for ever.

When one considers the very moderate elevation of the Saddle-Back range and the comparatively small area of coniferous forest offered by it, the number of northern birds that breed there is rather surprising. I believe the only truly migratory Canadian species

*The highest mountain in Connecticut, 2354 feet.

found during the breeding season in the White Mountains of New Hampshire that have not been detected in Berkshire are the Blackpoll and Bay-breasted Warblers, and the Philadelphia Vireo. The Red-bellied Nuthatch, Brown Creeper, Mourning Warbler, Blackburnian Warbler, and Hairy Woodpecker quite unexpectedly proved to be much commoner about Graylock than I have found them among the White Mountains. Others, on the contrary, are comparatively rare, as the Yellow-bellied Flycatcher,* Yellow-rumped Warbler, Golden-crowned Kinglet, and Bicknell's Thrush.

a/ From an ornithological point of view the Saddle-Back range is but an outlier of the Catskills. On reading Mr. Bicknell's notes on the summer birds of the southern Catskills† I was struck with their oppositeness to the Graylock list. I believe the only Catskill bird not yet found on Graylock to be the Blackpoll Warbler, discovered about the summit of Slide Mountain, the highest peak of the Catskills (4205 feet). After finding the Bicknell's Thrush on the summit of Graylock I confess to having looked with some confidence for another waif from the Catskills in the shape of a Blackpoll Warbler. Though unsuccessful, I believe that this bird will yet be found on Graylock by some future explorer.‡ The absence of the White-throated Sparrow and Nashville Warbler from Mr. Bicknell's list is surprising.

Perhaps not even in the Catskills do two distinctly typical faunæ come into such sharp contact as on the Saddle-Back range of northern Berkshire. The top of Graylock is only about 2800 feet above the Hoosac River at North Adams. Yet within this narrow vertical range we pass from a pure Alleghanian fauna characterized by such birds as the Bluebird, Wood Thrush, House Wren, Brown Thrasher, ~~Yellow Warbler~~, Yellow-breasted Chat, Field Sparrow, Towhee, Scarlet Tanager, Baltimore Oriole, and Quail to a Canadian assemblage which includes the Hermit, Swainson's, and Bicknell's Thrushes; the Golden-crowned Kinglet, Winter Wren, and Red-bellied Nuthatch; the Black-

* A pair of Yellow-bellied Flycatchers was seen on Graylock by Mr. Brewster, June 28, 1883. I neither saw nor heard this bird in 1888.

† A Review of the Summer Birds of a part of the Catskill Mountains, etc. By Eugene Pintard Bicknell. Trans. Linn. Soc. N. Y., I, 1882.

‡ "*Dendroica striata* has been seen in North Adams in August with young so immature that they must have been of local origin." T. M. B[rewer]. Bull. Nuttall Orn. Club, III, July, 1878, p. 138.

burnian, Black-throated Blue, Black-and-yellow, Yellow-rumped, Tennessee, Mourning, and Canadian Warblers; the White-throated Sparrow, Snowbird, Pine Finch, and Red Crossbill; the Olive-sided Flycatcher, and the Yellow-bellied Woodpecker. Under such conditions of compression there is naturally some intermingling of species representative of the two faunæ. Mr. Brewster* justly questions whether altitude be the sole factor regulating the distribution of birds on mountain slopes, and whether artificial causes, like the destruction of forests or the replacement of coniferous by deciduous trees, may not lead to a readjustment of faunal lines. This must be true especially in the case of a mountain of such moderate height as Graylock. I think that any one who has ascended this mountain by several routes will admit that the character of the surface and the vegetation have more to do with the distribution of the birds than temperature or other purely climatic conditions. If one should draw a line around the Saddle-Back range to indicate in a general way the limit of the Canadian faunal area, it would bear no closer relation to the altitudinal contour lines than do the isothermal lines across a continent to the parallels of latitude. On the North Adams side of the mountain the Canadian birds descend to a much lower level than they do in Williamstown. Not far from the North Adams Reservoir I found in some spruce and hemlock woods the Hermit Thrush, Black-throated Blue, Black-and-yellow, and Canadian Warblers, and Snowbird, evidently on their breeding-ground, within about half a mile of, and on the same level with the Yellow-breasted Chat, Towhee, and Brown Thrasher. The Wood Thrushes of the beech forest in the northern ravine of the Hopper compared with the Hermit Thrushes and other northern birds found at the same altitude on the opposite side of the 'Mountain Pasture' or height-of-land, afford another illustration of the influence of vegetation on the distribution of birds. When these mountains were in their primitive state and uniformly covered with forest, the correspondence between altitude and faunal regions was without doubt much closer than it is now.

LIST OF BIRDS OBSERVED IN SOUTHERN BERKSHIRE (SHEFFIELD,
AND VICINITY), JUNE 17-26, 1888.

1. *Actitis macularia*. SPOTTED SANDPIPER.—A few seen on the Housatonic River.

*Auk. I, p. 16.

2. *Bonasa umbellus*. RUFFED GROUSE.—Common, especially on the mountain sides.
3. *Zenaidura macroura*. MOURNING DOVE.—Rather common.
4. *Circus hudsonius*. MARSH HAWK.—Two seen.
5. *Buteo borealis*. RED-TAILED HAWK.—Two seen.
6. *Falco peregrinus anatum*. DUCK HAWK.—A pair established on Black Rock, a high cliff in the Taconic mountains, northwest of Isaac Spurr's.
7. *Coccyzus erythrophthalmus*. BLACK-BILLED CUCKOO.—Not rare.
8. *Ceryle alcyon*. BELTED KINGFISHER.—Three or four seen.
9. *Dryobates pubescens*. DOWNY WOODPECKER.—One seen, in the village of Sheffield.
10. *Colaptes auratus*. GOLDEN-WINGED WOODPECKER.—Common.
11. *Antrostomus vociferus*. WHIP-POOR-WILL.—Common.
12. *Chordeiles virginianus*. NIGHTHAWK.—Common.
13. *Chaetura pelagica*. CHIMNEY SWIFT.—Common.
14. *Trochilus colubris*. RUBY-THROATED HUMMINGBIRD.—Two or three seen.
15. *Tyrannus tyrannus*. KINGBIRD.—Common.
16. *Myiarchus crinitus*. CRESTED FLYCATCHER.—Not rare.
17. *Sayornis phoebe*. PEWEE.—Abundant.
18. *Contopus virens*. WOOD PEWEE.—Abundant.
19. *Empidonax pusillus traillii*. TRAILL'S FLYCATCHER.—Three or four seen in alders near water-courses.
20. *Empidonax minimus*. LEAST FLYCATCHER.—Abundant.
21. *Cyanocitta cristata*. BLUE JAY. Rather common.
22. *Corvus americanus*. AMERICAN CROW.—Common.
23. *Dolichonyx oryzivorus*. BOBOLINK.—Abundant.
24. *Molothrus ater*. COWBIRD.—Not uncommon.
25. *Agelaius phoeniceus*. RED-WINGED BLACKBIRD.—Common.
26. *Sturnella magna*. MEADOWLARK.—Not rare in the interval meadows of Sheffield.
27. *Icterus spurius*. ORCHARD ORIOLE.—Three or four, in full song, in Sheffield. A male, in second-year plumage, seen in Pittsfield, June 27.
28. *Icterus galbula*. BALTIMORE ORIOLE.—Common.
29. *Quiscalus quiscula (æneus?)*. CROW BLACKBIRD.—Not uncommon. The impropriety of using a gun in the places where I saw the Crow Blackbirds prevented a positive determination of the subspecies.
30. *Carpodacus purpureus*. PURPLE FINCH.—Common.
31. *Spinus tristis*. AMERICAN GOLDFINCH.—Common.
32. *Poocætes gramineus*. BAY-WINGED SPARROW.—Common.
33. *Ammodramus sandwichensis savanna*.—SAVANNA SPARROW.—Abundant.
34. *Ammodramus savannarum passerinus*. GRASSHOPPER SPARROW.—Common.
35. *Ammodramus henslowi*. HENSLOW'S SPARROW.—Two pairs in a low, wet piece of ground in Sheffield. They were not shy. The males sometimes sang in the grass and sedge, wholly out of view, at other times

mounted on tall weeds, shrubs, or low trees. Mr. Maynard compares the song to the syllables *sed-wick*, but to my ear there was a liquid sound in the first part—*fled-sic*, with a strong accent upon the first syllable. When heard at a very short distance it seemed almost tri-syllabic—*f-led-sic*. The song is delivered rapidly, the head thrown back as the notes are emitted.

36. *Spizella socialis*. CHIPPING SPARROW.—Abundant.
37. *Spizella pusilla*. FIELD SPARROW.—Common.
38. *Junco hyemalis*. SNOWBIRD.—Not uncommon on the summit of the Dome of the Taconics (or Mt. Everett), 2624 feet above the sea-level. Also found on the top of Bear Mt., Salisbury, Conn. (altitude, 2354 feet), June 24.
39. *Melospiza fasciata*. SONG SPARROW.—Abundant.
40. *Melospiza georgiana*. SWAMP SPARROW.—Not uncommon in suitable localities.
41. *Passer domesticus*. HOUSE SPARROW.—Common in the village of Sheffield.
42. *Pipilo erythrophthalmus*. TOWHEE.—Common, especially on the barren summits of the Taconic Mts.
43. *Habia ludoviciana*. ROSE-BREASTED GROSBIRD.—Rather common.
44. *Passerina cyanea*. INDIGO-BIRD.—Common.
45. *Piranga erythromelas*. SCARLET TANAGER.—Rather common. Known in Berkshire as the 'English Robin.'
46. *Petrochelidon lunifrons*. EAVE SWALLOW.—Common.
47. *Chelidon erythrogaster*. BARN SWALLOW.—Common.
48. *Clivicola riparia*. BANK SWALLOW.—Common, breeding in the banks of the Housatonic River.
49. *Ampelis cedrorum*. CEDARBIRD.—Common.
50. *Vireo olivaceus*. RED-EYED VIREO.—Abundant.
51. *Vireo gilvus*. WARBLING VIREO.—Common.
52. *Vireo solitarius*. BLUE-HEADED VIREO.—Not very common. Met with at Guilder's Pond, on the west side of the Dome, and in some other places.
53. *Vireo noveboracensis*. WHITE-EYED VIREO.—Only two specimens observed.
54. *Mniotilta varia*. BLACK-AND-WHITE WARBLER.—Common.
55. *Helminthophila ruficapilla*. NASHVILLE WARBLER.—Rare at lower levels, not rare on the mountains.
56. *Compsothlypis americana*. BLUE YELLOW-BACKED WARBLER.—Not common.
57. *Dendroica æstiva*. YELLOW WARBLER.—Common along the willowed shores of streams near the village. Seldom observed elsewhere.
58. *Dendroica cærulescens*. BLACK-THROATED BLUE WARBLER.—Common on the Taconic Mts. from their base to summit. Wherever the mountain sides presented a fine growth of maple, chestnut, etc., with a dense under-growth of mountain laurel (*Kalmia latifolia*), the drawing notes of this bird were sure to be heard. Indeed I have nowhere found them more abundant than here. They are equally common in similar places in the northwestern part of Connecticut.

59. *Dendroica pensylvanica*. CHESTNUT-SIDED WARBLER.—Common, extending up to the highest summits of the Taconic Mts.

60. *Dendroica blackburniæ*. BLACKBURNIAN WARBLER.—But one specimen observed, a male in full song, in a grove of white pines in Sheffield, June 20.

61. *Dendroica virens*. BLACK-THROATED GREEN WARBLER.—Not rare in pine woods.

62. *Seiurus aurocapillus*. GOLDEN-CROWNED THRUSH. — Common wherever there are woods.

63. *Seiurus noveboracensis*. WATER-THRUSH.—One observed, June 17, on the edge of a small stream near the village of Sheffield. Although the place was often visited afterward, I failed to see or hear the bird again. I did not meet with this species later in northern Berkshire.

64. *Geothlypis trichas*. MARYLAND YELLOW-THROAT.—Common.

65. *Icteria virens*. YELLOW-BREASTED CHAT.—One pair, Sheffield.

66. *Sylvania canadensis*. CANADIAN WARBLER.—Not uncommon on the Taconic Mts. of southwestern Berkshire and Litchfield Co., Conn.

67. *Setophaga ruticilla*. AMERICAN REDSTART.—Rare.

68. *Galeoscoptes carolinensis*. CATBIRD.—Common.

69. *Harporhynchus rufus*. BROWN THRASHER.—Not rare, although not nearly so common as in eastern Massachusetts.

70. *Troglodytes ædon*. HOUSE WREN.—Common.

71. *Parus atricapillus*. CHICKADEE.—Not many were seen.

72. *Turdus mustelinus*. WOOD THRUSH.—Common.

73. *Turdus fuscescens*. WILSON'S THRUSH.—Common. A few observed well up towards the summit of the Dome.

74. *Turdus aonalaschkæ pallasii*. EASTERN HERMIT THRUSH.—Common on the Taconic Mountains where it replaces to a great extent the Wood Thrush which is found only sparingly on the mountain sides. Also found to be abundant on Bear Mt., Salisbury, Conn.

75. *Merula migratoria*. AMERICAN ROBIN.—Abundant.

76. *Sialia sialis*. BLUEBIRD.—Common.

(To be continued.)

REMARKS UPON ABNORMAL COLORING OF PLUMAGE OBSERVED IN SEVERAL SPECIES OF BIRDS.

BY GEO. N. LAWRENCE.

As it might be of interest and call forth similar observations by others, I have concluded to put on record the instances that have

come under my notice of abnormal coloring in several species of birds. Mr. Ruthven Deane (Vol. I, No. 1, of the Bulletin of the Nuttall Orn. Club) has an interesting paper on albinism and melanism among North American Birds. The cases to which I am about to call attention would seem to proceed from quite a different cause from that producing albinism or melanism.

In 1862 (Ann. Lyc. of Nat. Hist., Vol. VII, p. 475) I described as new a Parrot from Panama, under the name of *Psittovius subcæruleus*; this specimen, in its general plumage, is of quite a uniform pale blue, and in color differs from any other American Parrot.

When Dr. Otto Finsch of the Bremen Museum was preparing his great work on the Parrots ('Die Papageien') published in 1865, he requested to see certain specimens of the family in my collection; with this I complied, sending the above-named specimen with others. At that time he considered *P. subcæruleus* to be a valid species and gave a figure of it in his book.

In 1871 (Ibis, p. 94) Mr. Salvin says of this specimen: "Dr. Finsch considers this bird to belong to a good species. For my own part, without having seen the original specimen, I cannot but think that the blue coloring of the plumage is accidental, and due to a deficiency in the yellow element of the normally green color of the feathers. Mr. McLeannan, who shot the specimen from which Mr. Lawrence took his description (the only one, I believe, that has ever been obtained) considered it only a variety of *B. tovi*, with individuals of which species he found it associating. I notice that in some specimens in our series of *B. tovi*, the feathers of the back are bluer than in others. *B. subcærulea* may only show an extreme development of this tendency."

Several years have elapsed since this specimen was described, and no similar ones have been obtained.

Mr. Salvin has offered two plausible theories to account for the peculiar plumage of this Parrot.

Since then, what I consider to be a very similar case, has come immediately under my notice, which induces me to think there is a cause for the last theory advanced by Mr. Salvin. A brood of Canary Birds was raised by a member of my family, in which there was a great disparity of colors. The male parent bird was of a very light yellow, with pure white wings and tail, the female was of a dark greenish color (of the variety known as

green Canaries). One of the brood was entirely white, the other three were all of the dark green color of the mother, without a particle of white in their plumage.

I recollect that the idea then occurred to me, that all the white element of color from the male was concentrated in one individual of the brood, which should have been disseminated to some extent among the others. I did not consider the white bird to be an albino, and as it was very beautiful we intended keeping it, supposing it to be a male, but soon after being fully fledged, it unfortunately escaped. The others we thought were probably females, and having no claims to beauty they were given away.

For the case of the Parrot to be parallel to that of the Canaries, all the others of the brood should have been without any blue color, but that they were so can only be a matter of conjecture.

Another instance of the blue color being predominant, is that of a specimen of *Vireolanus* which was sent me from the Smithsonian Institution some years ago, as possibly a new species. I found it to be an abnormally colored example of *V. pulchellus*. The usual plumage of this species is as follows: above of a rather light clear green; the head and hind neck light blue; the under plumage of a pale yellowish green; the throat and inner margins of the quills pale yellow. The specimen under examination is of a uniform light blue color above, and of a pale whitish blue below; the throat and inner margins of the quills whitish. This seems similar to the two cases above mentioned.

For quite a long time I have had in my possession an example of *Procnias tersa*, which is entirely of a clear light yellow—much resembling a Canary Bird in color,—and having a few very pale dusky bars on the sides. These bars, although nearly obsolete, enabled me to determine the species, as they are a strongly marked character, in the normal plumage of both sexes. In the regular plumage of the female of this species, the only yellow color is on the abdomen and under tail coverts, the rest of the plumage being green. The male is verdigris-blue, with a white abdominal stripe, and no yellow whatever in its plumage. I can only attribute this abnormal coloring to a similar cause to that which produced it in the other cases.

I procured in Fulton Market, a specimen of *Tympanuchus americanus*, male, which was of an unusual color. The rufous coloring which exist in the neck tufts, and in some individuals

in the upper plumage, of all normally colored birds, pervades nearly the entire plumage of this specimen. All the usually light markings are tinged with bright light rufous; the entire under plumage is deep rufous; the dark bars and the under tail coverts are of the usual color; the neck tufts are deep rufous tipped with black, none of the feathers being light buff as some of them are in normally colored birds; the throat is tinged with rufous. It was in good condition, weighing $2\frac{1}{4}$ pounds. The rufous coloring of this specimen may be due to the same cause as in the preceding cases, but perhaps it is open to doubt.

The inference seems a fair one, that sometimes from some unknown cause, a certain color which is normal in a species, or in one of the parents, is concentrated in one individual of a brood, to the exclusion of it from the others.

The great change of plumage—which was a gradual one—in the bird about to be described, is due to a very different cause. Several years ago, a green Parrot was received at the Central Park Menagerie, to which Mr. Conklin called my attention, as it was marked with a few conspicuous scarlet and yellow feathers. As it was in one of their large wire enclosures, I could not examine it closely, and for some time was unable to determine the species. I found it to be an example of *Chrysotis vittata*, the body of which in its normal plumage is entirely green, except that it has a narrow band of scarlet on the front. I watched it with much interest, as I found that most of the feathers were gradually changing color. It was two or three years before it died, when Mr. Conklin sent it to me. By that time the scarlet and yellow coloring had increased so much as to occupy the entire plumage of the body, except the head and neck, and these are marked with scattering feathers of scarlet. If it had lived a little longer all its plumage would probably have been scarlet and yellow, except the wing and tail feathers. The scarlet coloring much exceeds that of the yellow; the specimen is of brilliant plumage.

Dr. A. B. Meyer has an article (Sitzungb. Kön. Preuss. Akad. Wissensch. Berlin, 1882, No. 24) on this change of plumage, which he terms “xanthochromism in Parrots.” In referring to this paper the editors of the *Ibis* (1883, p. 176) say: “Hence xanthochromism in Parrots seems, to a certain extent, to supplant the albinism of other birds.”

My opinion is, that the change is caused by the birds being in confinement.

In the Maximillian collection, now owned by the American Museum of Natural History, there is an example of a Parrot—also normally green—in which most of the feathers have changed to yellow; it is labelled "*Chrysotis amazonica* var. *domestica*." I think from the name, it is evident that Prince Maximillian considered the yellow coloring of this Parrot to be due to domestication.

NOTES ON THE BIRDS OF WHITE TOP MOUNTAIN, VIRGINIA.

BY WILLIAM C. RIVES, JR., M. D.

THE WHITE TOP and Balsam Mountains in southwestern Virginia, are the loftiest in the State, and none of equal elevation lie between them and New England. They may be regarded as forming the limit to the northward of the 'Land of the Sky,' for although wholly in Virginia, they are within a short distance of the North Carolina line and are directly adjacent to its mountain region. The altitude of White Top was given by Professor Guyot as 5530 feet, but according to the more recent observations of the U. S. Geological Survey its height is 5673 feet, and that of the Balsam (also called Mt. Rogers) 5719 feet.

The former mountain may be easily reached by means of a road which runs from Seven Mile Ford on the Norfolk and Western Railway, over its eastern shoulder into Ashe County, North Carolina. With the intention of visiting it, our party left Glade Spring, a station on the railway at the height of 2088 feet, on July 25, 1888, and arrived the same evening at Miller's, a few hundred feet below the highest point. Among the birds noticed on the journey, I caught a glimpse, while crossing the Iron Mountain about 4000 feet high, of one which appeared to be a Chestnut-sided Warbler (*Dendroica pensylvanica*). About the lower part of White Top grow many magnificent trees, oaks, sugar maples, poplars (*Liriodendron tulipifera*) of remark-

able height, hemlocks, beeches and various lesser kinds, among them a species of mountain magnolia. Deciduous trees, even of large dimensions, are to be found nearly up to the summit. One birch tree of unusual size, less than a thousand feet from the top, we measured roughly, and estimated its circumference at twenty-three feet. On its southern exposure, the crown of the mountain is a beautiful grass field, affording excellent grazing for cattle and a congenial place for the numerous Snowbirds in which to construct their nests. On the northern side it is wooded and somewhat precipitous, while the extreme summit is covered with a thick growth of a species of balsam known locally as the lash-horn, and is carpeted with beds of moss and the pretty flowers of *Oxalis acetosella*, strongly reminding one of the Adirondack woods.

As my stay was short, three nights only being spent at Miller's, my ornithological investigations were chiefly confined to the upper 1000 feet of the mountain, which, it might be supposed, would be of special interest. *Junco hyemalis carolinensis* was, as I have intimated, abundant, and, I was informed, breeds there plentifully, the nests being usually found in the grass field I have referred to. I was shown one nest in a depression in the grass near the summit, containing three young birds recently hatched, and was told that one containing eggs had been seen the preceding Saturday, July 21. These were of course second broods. The feeble lisping notes of the Golden-crowned Wrens (*Regulus satrapa*) betrayed their presence, in the lashhorns at the top, and they proved to be quite common, sharing that elevated abode with a few Black-throated Green Warblers (*Dendroica virens*). The latter birds were exceedingly common lower down, being numerous among the deciduous trees, and not at all confined to the balsams, as Mr. Brewster found them on the Black Mountain. The Black-throated Blue Warbler (*Dendroica caerulescens*) was not very common, not nearly so much so as *D. virens*, which was perhaps partly due to the comparative absence of large laurel brakes from this part of the mountain, although even in apparently suitable localities they were not abundant. One or more Blackburnian Warblers (*Dendroica blackburniæ*) were also observed, and were, I suspect, not uncommon, and the Black-and-white Creeper (*Mniotilta varia*) was seen quietly occupied as usual in its industrious

search for food. I was surprised not to find the Canada Warbler (*Sylvania canadensis*).

The fine mountain variety of the Blue-headed Vireo (*Vireo solitarius alticola*) was common in the woods, and I frequently heard their pleasing notes, varied occasionally with the peculiar unmusical sounds which Vireos are in the habit of making.

Brown Creepers (*Certhia familiaris americana*) were seen about the hemlocks growing on the edge of a laurel brake. A Downy Woodpecker (*Dryobates pubescens*) was noted, and a rather large-sized Hairy Woodpecker (probably *villosus*). The Red-bellied Nuthatch (*Sitta canadensis*) was rather common although shy; its presence was often disclosed by its *āānk āānk*, when by carefully looking for the source of the notes the little bird would frequently be seen hopping along some tree trunk or its branches after its characteristic fashion. Robins (*Merula migratoria*) were to be found even above 5000 feet, as not far from the top I caught a young bird in my hand, greatly to the distress of the parent bird which uttered vigorous complaints until I let it go. I had a glimpse of a Ruffed Grouse (*Bonasa umbellus*) which, I believe, is not uncommon. I was unable to identify any Ravens, but on inquiring learned that they were often seen in this region, the difference between them and the Crows, which are also to be met with, being distinctly recognized. I noticed two Turkey Buzzards (*Cathartes aura*) sailing about in the air at a considerable height.

An animal described to me under the somewhat mysterious name of 'mountain boomer,' proved to be nothing more alarming than *Sciurus hudsonius*. It was quite common, and was an additional indication of the Canadian character of the fauna. On the day of leaving the mountain my attention was attracted by the melodious song of a bird whose notes I did not recognize. I spent some time in trying to obtain sight of it, but in vain, although at times it must have been within a short distance. It was not improbably the Winter Wren (*Troglodytes hiemalis*), with whose song I had not previously had the opportunity of making myself familiar.

The Balsam, its dark crest covered with coniferæ, of which it has a much more extensive growth than White Top, adjoins that mountain on the east, and an excursion to it might have disclosed other interesting species; it seems, however, to be rarely visited,

and the long and hard ascent with little or no path would have needed more time than I had to devote to it.

On the descent of White Top I heard a Quail (*Colinus virginianus*) at an elevation of 4500 feet; it is common in the lower country where I saw one and heard others whistling. I observed a Yellow-bellied Woodpecker (*Sphyrapicus varius*) above 4000 feet. In a clearing at the base, there were some Chimney Swifts (*Chætura pelagica*). In the country between the upper part of the mountain and the railway, or at Glade Spring and its vicinity, were noticed the Yellowbird, Dove (one of which was seen sitting on its nest), Catbird, Red-headed and Golden-winged Woodpeckers, a number of Purple Martins, the Kingbird, Ruby-throated Hummingbird, Barn Swallow, Indigo-bird, Green Heron, Spotted Sandpiper, and some other species, and the notes of the Wood Pewee and Maryland Yellow-throat were heard.

A NEW NAME FOR THE SPECIES OF *SPOROPHILA* FROM TEXAS, GENERALLY
KNOWN AS *S. MORELLETI*.

BY GEORGE N. LAWRENCE.

***Sporophila morelleti sharpei*.**

Spermophila albigularis LAWR., nec SPIX.

Spermophila morelleti SCL., nec BP.

Spermophila parva SHARPE, nec LAWR.

I described this species in 1851 (Ann. N. Y. Lyc. Nat. Hist., Vol. V, p. 123) as an inhabitant of Texas, under the name of *Spermophila albigularis* Spix. Mr. P. L. Sclater (P. Z. S., 1856, p. 302) decided that it was not different from *S. morelleti*, Bp. (Cons. Av., Vol. I., p. 497). With this decision I did not feel satisfied, as none of the numerous specimens received from Texas had the black band on the throat, which exists in the full-plumaged male of *S. morelleti*. It has thus remained until Mr. Sharpe in his investigation of the Fringillidæ for Volume XII of the British Museum Catalogue, at page 124, considered it to be

identical with my *S. parva* from Western Mexico (Ann. N. Y. Acad. Sciences, Vol. II, p. 382), and as it could not retain the name of *abigularis*, placed it under *S. parva*.

With his determination I cannot agree, and am sustained in my opinion by all our ornithologists to whom the specimens have been submitted.

Besides being from very different localities, the two species appear to differ as stated below. The type of *S. parva* being a female, I have made the comparison with specimens of that sex.

Four fine female specimens from Lomita, Texas, kindly loaned me by Mr. G. B. Sennett, are all at first sight larger in appearance than *S. parva*, though the wings of each species are of the same size; the wing-coverts of *S. sharpei* are whitish at their ends, forming two decided bars across the wings, whereas in *S. parva* only the middle coverts end in whitish, though more narrowly, and the greater coverts have their sides and ends margined with duller white; in *S. parva* the tertiaries are more conspicuously margined with dull white than those of *S. sharpei*; the upper plumage of *S. parva* is of a warm light brown, that of *S. sharpei* being decidedly ash-colored; the entire under plumage of the latter is of a light fulvous color, that of *S. parva* being whitish with just a tinge of fulvous on the breast; the tail of *S. parva* is shorter and the feathers are much broader; the bill of *S. parva* is lighter in color than that of *S. sharpei*.

The most mature males of *S. sharpei* are grayish above, with the crown and sides of the head black, and the back blotched with black; the under parts are pale fulvous white with an indistinct collar of black, though this latter character is seen in but few specimens.

In the true *S. morelleti* the upper plumage is jet black, with the rump more conspicuously pale fulvous, than in *S. sharpei*; the under plumage is light fulvous, with a strongly marked black collar across the lower part of the throat and the upper part of the breast. Types in American Museum of Natural History, New York. In my opinion the Texas bird requires to be named, and I have conferred upon it that of my friend, Mr. R. B. Sharpe, as he is the only one who has recognized it as being distinct from *S. morelleti* Bp., based on Guatemalan specimens.

SIXTH CONGRESS OF THE AMERICAN ORNITHOLOGISTS' UNION.

THE SIXTH CONGRESS of the American Ornithologists' Union was held in the Lecture Room of the U. S. National Museum, Washington, D. C., Nov. 13-15, 1888, the President in the Chair. The meeting was attended by twenty Active Members, and seventeen Associate Members, making a total attendance of thirty-seven, a number considerably in excess of the attendance at any previous Congress of the Union.

The Secretary's report comprised, besides the usual statistics relating to membership, a concise review of the work of the Union during the five years of its existence, showing how great has been its influence on the progress of ornithology in North America. The membership of the Union was stated to be as follows:—Active Members, 45; Honorary Members, 25; Corresponding Members, 65; Associate Members, 159. The Union had lost by death during the year one of its founders, Dr. Joseph B. Holder,* five Corresponding Members, and three Associate Members. The Corresponding Members were Dr. Modest N. Bogdanow † of Moscow, Mr. Harry Pryer ‡ of Yokohama, Colonel N. Prjevalski § of St. Petersburg, Count A. F. Marschall § of Vienna, and Mr. Henry Stevenson § of Norwich, England; the Associate Members were Mr. Charles W. Beckham || of Washington, Mr. Thure Kumlien ¶ of Milwaukee, Wisc., and Prof. Charles Linden** of Buffalo, N. Y.

The Treasurer's report upon the finances of the Union showed for the first time a small balance in the treasury, 'The Auk' having proved self-sustaining.

The report of the Council covered various matters of business, which were later duly acted upon as noted in the department of 'Notes and News' in the present number of 'The Auk.'

* See Auk, Vol. V, April, 1888, p. 220.

† See Auk, Vol. V, 1888, p. 333.

‡ Ibid., p. 332.

§ For obituaries see 'Notes and News' of the present number of 'The Auk.'

|| See Auk, Vol. V, 1888, p. 445.

¶ See 'Notes and News' of the present number of 'The Auk.'

** Auk, Vol. V, 1888, p. 220.

The election of officers resulted in the re-election of the incumbents of the previous year, except that in the Council Mr. Thomas McIlwraith was elected as the Canadian representative, Mr Chamberlain, who had hitherto filled the position, at present living in the United States. Four Active Members were elected, as follows: Walter E. Bryant, of San Francisco, Cal.; Frank M. Chapman, Assistant in Ornithology at the American Museum of Natural History, New York City; Lyman S. Foster, of New York City; Gurdon Trumbull, of Hartford, Conn. Five Corresponding Members were also elected, as follows: Anastasio Alfaro, San José, Costa Rica (Director of the Costa Rica National Museum); Sanford B. Dole, Honolulu, Hawaiian Islands; Harry V. Henson, Yokohama, Japan; Valdemar Knudsen, Kanai, Hawaiian Islands; Frederic Ringer, Nagasaki, Japan.

One hundred and ten Associate Members were elected.*

The usual reports of progress were made by the several standing committees. Dr. Merriam, Chairman of the Committee on the Geographical Distribution and Migration of North American Birds, gave an extended account of the work as now carried on under his direction as a part of the work of the Division of Economic Ornithology and Mammalogy of the U. S. Department of Agriculture, very fully explaining and illustrating the methods of investigation adopted, by means of maps, diagrams, and systematically arranged data. He announced that 'Bulletin No. 2,' consisting of Prof. W. W. Cooke's 'Report on Bird Migration in the Mississippi Valley in the years 1884 and 1885,' was printed and about ready for distribution (since issued†), and that 'Bulletin, No. 1,' on the House Sparrow, was in press. Several other 'Bulletins' on special subjects are already in an advanced stage of preparation.

Dr. Coues, Chairman of the Committee on Avian Anatomy, read a report prepared by Dr. Shufeldt, Secretary of the Committee, on the work of the latter during the past year.

In the absence of the Chairman of the Committee on the Protection of North American Birds, Mr. George B. Sennett, Mr. Allen made a brief report of the work of the Committee, which was

* The names of the new Associate Members, so far as they have qualified to date, will be found in the membership lists issued with the present number of 'The Auk.'

† See the present number of 'The Auk,' p. 58.

supplemented by remarks from two other members of the committee, namely, Col. N. S. Goss of Kansas and Mr. William Dutcher of New York. Efforts were being made to influence legislation in the direction of more efficient legal protection for birds, and the Committee was also continuing its good work of enlightening the public by the dissemination of much needed information on the subject of bird protection.

In the absence of Dr. George B. Grinnell, Chairman, Mr. Dutcher read the report of the Committee appointed last year to co-operate with the Committee of the New York Academy of Sciences in procuring funds for the erection of a suitable monument to the memory of Audubon. The report stated the action of the Committee in the matter and the amount of funds raised for the object in question.

Two days of the session were wholly devoted to the presentation and discussion of scientific papers. Several of them proved of special interest, leading to protracted and profitable discussion. At the close of the third day a number were read merely by title, owing to the lack of time for their presentation in full. A list of the papers is as follows, those read simply by title being marked with a star.

The Shape of the Bill in Snail-eating Birds, by Prof. W. B. Barrows. Additions to his List of Kansas Birds, with Notes on their Habits, by Col. N. S. Goss. Notes on the Birds of the Magdalen Islands, by Dr. L. B. Bishop. The Eastern Margin of the Habitat of *Sturnella neglecta*, by Prof. J. W. McGee. Bird Notes from Little Gull Island, N. Y., by Basil Hicks Dutcher. Notes on the Destruction of Grasshoppers by Flocks of Swainson's Hawks, by Dr. C. Hart Merriam. Bird Notes from Long Island, N. Y., by William Dutcher. The Flight of Birds, by Dr. Elliott Coues. Food of the English Sparrow, by Prof. C. V. Riley. The *Helminthophilæ* in Connecticut during the Spring of 1888, by Dr. L. B. Bishop. Notes on *Spizella arenacea*, by Dr. C. Hart Merriam. On the position of *Chamæa* in the System, by Dr. R. W. Shufeldt (read by Dr. Coues). Notes on the Nesting Habits of Leach's Petrel, by Dr. L. B. Bishop. Graphic Representation of Bird Migration, by Witmer Stone (read by Mr. Thompson). On Studying the Habits of Birds, by Ernest E. Thompson. Remarks concerning the Destruction of Multitudes of Small Birds near the South End of Lake Michigan

by a Storm which Overtook them in Migration, in May, 1888, by Dr. C. Hart Merriam. The Relationship of the Large Florida Herons, by W. E. D. Scott. Notes on a Collection of Birds from the Vicinity of Quito, by J. A. Allen. On a Collection of Birds made in Bolivia by Dr. H. H. Rusby, with Field Notes by the Collector, by J. A. Allen. *The Booming of the Bittern, by Bradford Torrey.† *Remarks on the Three-toed Woodpeckers, by Dr. L. Stejneger. *Nesting Habits of Clarke's Crow, by Capt. C. E. Bendire. *Notes on the Southern Breeding Range of *Pinicola enucleator*, by Philip Cox. *The Anhinga, by Col. N. S. Goss. *The Main Divisions of the Swifts, by F. A. Lucas.† *The Summer Birds of Berkshire Co., Mass., by Walter Faxon.†

The meeting proved, in point of attendance and in the number and character of the papers presented, the most successful thus far held, and from a social point of view left little to be desired, the Washington members giving their visitors a most cordial welcome. On Tuesday evening a reception was given them by Dr. and Mrs. Coues, and another on Wednesday evening by Dr. Merriam and Mr. Henshaw.

It was voted to hold the next meeting in New York City, on the second Tuesday in November, 1889.

RECENT LITERATURE.

Cooke's 'Report on Bird Migration in the Mississippi Valley.'‡—This Report forms 'Bulletin No. 2' of the Division of Economic Ornithology of the U. S. Department of Agriculture—a work that has been long and "clamorously" awaited. To quote from the editor's 'Prefatory Letter,' the report "consists of two parts: (1) an introductory portion treating of the history and methods of the work, together with a general study of the subject of Bird Migration, including the influence of the weather upon the movements of birds, the progression of bird waves and causes affecting the same, the influence of topography and altitude upon migration, and the

† Published in the present number of 'The Auk.'

‡ U. S. Department of Agriculture. | Division of Economic Ornithology. | Bulletin No. 2. | — | Report | on | Bird Migration | in the | Mississippi Valley | in | the years 1884 and 1885. | by | W. W. Cooke. | — | Edited and Revised by Dr. C. Hart Merriam. | — | Washington: | Government Printing Office. | 1888. 8vo, pp. 313, with Map.

rates of flight in the various species; and (2) a systematic portion in which the five hundred and sixty species of birds known to occur in the Mississippi Valley are treated serially, the movements of each during the seasons of 1884 and 1885 being traced with as much exactness as the records furnished by the one hundred and seventy observers in the district permit."

The labor of elaborating and compiling this report has evidently been very great, not only the data from this large number of field observers having been collated, but much matter relating to distribution having been incorporated from published sources. Part II thus contains a very large amount of information bearing upon the migrations and breeding ranges of the birds found in the Mississippi Valley.

Under the head of 'Theoretical Considerations' (pp. 11, 12), the author states his belief that the autumnal migration is "the result of two causes—the approach of winter and the failure of the food supply," and that the spring migration is due to "a strong home love—an overpowering desire to be once more among the familiar scenes of the previous summer." In respect to the autumnal migration, it is considered obvious that the failure of the food supply is the primary cause of the movement, "since it is well known that single individuals of species which retire far to the south often remain behind, and, favored by an abundance of food, withstand the most severe weather." The impulse that leads to the return of birds in spring to their summer homes is doubtless not to be wholly accounted for by what has been called "love of home," to which theory the editor in a footnote (p. 11) takes strong exception. He attributes this movement to failure of "the food supply," to unfavorable "climatic conditions," "to physiological restlessness" induced by "the approach of the breeding season," and to an inherited "irresistible impulse to move at this particular time of the year." The reasons given for the autumnal movement clearly afford a satisfactory explanation, since in most instances were migratory species to remain in winter at their accustomed breeding grounds few would escape total extinction. The reasons for the return movement are more complex and less obvious. Lack of food can hardly be assumed as one of them. Increase of temperature at their winter quarters, as spring advances, must render the lower latitudes at this season uncongenial, and at the same time awaken the periodic activity of the reproductive system, which "gives rise to physiological restlessness," and imparts "the irresistible impulse to move at this particular season of the year" toward the breeding habitat of the species. While it is assumed that birds are directed thither by the "unerring instinct" of "inherited memory," the ultimate choice of a particular district by the different individuals may be determined by a true home love, which beyond question leads birds to the same fields and nesting trees for many successive years, and possibly also their descendants for generations.

If, however, we may reason from birds to migratory fishes, whose migrations are quite as exact and methodical as those of birds, it would seem that there is still something to explain in regard to the return of birds

to practically the same locality year after year to breed. In the efforts of the Fish Commission to restock our exhausted rivers with fish it has been found that such migratory species as the shad, when placed as fry in rivers remote from the habitat of their parents, return the next year not to the home of their ancestors, as 'inherited habit' would seem to demand, but to the very rivers where they were turned out as fry. Such phenomena seem to introduce a new problem into the question which may well receive serious consideration.

Migration, as is well known, is by gradual stages, occupying many weeks, and often several months, and is largely influenced by meteorologic conditions, which govern the ever varying rate of progress, periodically accelerating or holding in check the onward movement, and giving rise to what are known as waves of migration. The beginning of return migration in spring is coincident with the first 'warm wave,' which may occur earlier or later according to the season. This first advance is usually soon checked by a falling temperature, and the movement remains stationary during its continuance, the retardation being governed by the length and intensity of the period of cold. With an immediately succeeding warm wave the northward journey is resumed, to again soon receive a more or less decided check by an alternating cold wave; and so on, with a greater or less number of repeated checks and impulses, till the various species of migratory birds have reached their summer homes. While all this has long been known in a vague way, Professor Cooke has now given us the history of the spring migration during the years 1884 and 1885 for a large number of birds inhabiting or passing through the broad region of the Mississippi Valley, and has traced in detail many 'bird waves,' with their concomitant meteorologic conditions. It is thus demonstrated that in general the migratory movements of birds in spring are governed by atmospheric changes, notably the alternation of warm and cold waves, the former favoring and the latter retarding or wholly checking movement, according to their severity. As these alternating cold and warm atmospheric waves depend upon atmospheric pressure,—the direction of winds being toward an area of low barometer,—and pass across the country from the west toward the east, warm winds blow from the south over the region south of a 'storm centre' or area of low barometer. Thus the waves of bird migration during the spring movement are not only necessarily from the south northward, but are coincident with a warm atmospheric wave and a southerly wind; and the wave of migration varies in magnitude with the duration of the warm atmospheric wave and its intensity as regards temperature.

While these are the favorable conditions for bird migration, birds move more or less under the ordinary conditions of the weather proper to the season, and are only held in check by the unfavorable conditions of a cold wave, accompanied by northerly winds and a sometimes fatal reduction of temperature.

Professor Cooke gives the average rate of movement of certain birds based on the data collected, from which it appears that the Baltimore Oriole

passed from Rodney, Miss., to Oak Point, Manitoba, a distance of 1298 miles, in 48 days, giving an average rate of progress of 27 miles per day. The records for 58 species during the spring of 1883 give an average rate of 23 miles per day. But of course the rate of progress is not uniform for even the same species, it being greater over the northern portion of the route than over the southern, and much greater during some days than others, according to whether the conditions for movement are favorable or otherwise. Also, as would be expected, the late migrants move more rapidly than the early ones.

While Professor Cooke has thus thrown much light upon the manner and coincident phenomena of migration, and made a most valuable contribution to our knowledge of the subject, his limitations in respect to the quality and number of the data at hand give a somewhat pioneer character to his work. His observers were too few and the greater part too untrained to give a satisfactory basis for the task so energetically undertaken; yet his report is a remarkably successful effort, considering the embarrassing circumstances under which he has labored; and we believe that the editor, in his prefatory letter, does not overrate its importance in considering it "the most valuable contribution ever made to the subject of Bird Migration." It gives one a vivid forecast of what may be looked for in forthcoming reports on the same subject, based on the work of many more observers, covering a much longer period.

In closing this notice it would be a grave omission not to call special attention to the model work of Mr. Otto Widmann at St. Louis (see pp. 33-37), and also the important assistance rendered by Prof. D. E. Lantz, of Manhattan, Kansas. A dozen observers like Mr. Widmann, scattered at proper intervals, would give a fairer basis for generalizations than hundreds of observers of the grade on whom Professor Cooke was obliged to depend for many of his data. This should stimulate the more experienced and well qualified field ornithologists to contribute to the fullest degree possible to the furtherance of this important investigation.—J. A. A.

Nelson's Report upon Natural History Collections made in Alaska.*—Following close upon Mr. Turner's 'Contributions to the Natural History of Alaska' (see Auk, Vol. V, pp. 409, 410) comes Mr. E. W. Nelson's 'Report' upon his natural history work in the same Territory during the years 1877-1881. Two thirds of this carefully prepared volume, or some 210 pages and 12 colored plates, relate to Alaskan ornithology. Mr. Nelson arrived at St. Michaels, June 17, 1877, which place was his headquarters, and where he passed the greater part of his time, till the last of

* Report upon Natural History Collections made in Alaska Between the years 1877 and 1881 | by Edward W. Nelson. | — | Edited by Henry W. Henshaw. | — | Prepared under the direction of the Chief Signal Officer. | — | No. III. | Arctic Series of Publications issued in connection with the Signal Service, U. S. Army. | With 21 Plates. | — | Washington: | Government Printing Office. | 1887 [= 1888]. 4to., pp. 337. (Birds, pp. 19-230, pll. i-xii, colored.)

June, 1881. Two months of the winter of 1877-78 were spent in exploring the Lower Yukon River and the adjacent coast region. In May, 1879, a trip was made to the Yukon delta, and in February, 1880, a long journey was made up the coast to Sledge Island, situated just south of Bering Straits. In November of the same year an extended expedition into the interior was undertaken, during which the Anvik River country and the region about the head-waters of the Innoko River were explored. While the principal object of these expeditions was the study of the ethnology of the districts visited, zoölogy and geography received much attention. Finally, in the summer of 1881, Mr. Nelson made a trip on the U. S. Revenue Steamer 'Corwin,' as naturalist of the expedition, to Bering Sea and the Siberian Coast. The collections gathered at Saint Michaels and on the various expeditions in Alaska, included "over two thousand bird skins and fifteen hundred eggs." The author says, "To complete the report I have made free use of the skins contained in the Smithsonian collections, obtained by other collectors in Alaska, and the literature on that region has yielded many notes and facts of interest. The author's aim has been so far as possible to embody herein all of importance that is known concerning the birds of Alaska, but for unavoidable causes he has been compelled to curtail that portion relating to the swimming birds subsequent to the ducks and geese."

Mr. Nelson's expeditions entailed great exposure and hardship, with most lamentable results to his health, which gave way very soon after his return to Washington in November, 1881. When compelled to desist from work and seek a more favorable climate in the far West, his ornithological report was well advanced toward completion, but the final touches, and the revision its long-delayed publication has occasioned, had to be made by another hand. This revision and the editorial supervision fortunately fell to Mr. H. W. Henshaw, who appears to have given very careful attention to the final preparation and publication of the work.*

The 'Introduction' to Mr. Nelson's report treats of the 'General Character and Extent of Alaska, with the Faunal Subdivisions,' of which four are recognized, as follows: 1. Sitkan District, strictly limited to the coast directly affected by the warm southward-flowing Japanese current. 2. Aleutian District, consisting of the Aliaska Peninsula and the Aleutian chain of islands. 3. Alaskan Arctic District, limited to the narrow treeless coast belt along the Arctic coast. 4. Alaskan-Canadian District, embracing the wooded interior.

The number of species treated is 267 (if we have counted them correctly—they are not serially numbered), the text devoted to each varying from a few lines to several pages, largely based on the author's specimens and field notes. The life history of many of the species is treated at length, as is especially the case with several of the Puffins, Geese, Ducks, Phalaropes, Sandpipers, Ptarmigans, etc., from the standpoint

*It appears that the results of Mr. Nelson's ethnological work will form the subject of a special volume on the preparation of which he is still engaged.

of the writer's personal experience with them, these biographies being, moreover, very pleasantly written. The immature and other special plumages of many of the species are also described at length. The twelve plates, drawn by Messrs. R. and J. L. Ridgway, are not satisfactory productions, the original colored drawings having been very faultily rendered by the lithographer.

Besides the extended bird matter, the work contains a very important report on the mammals, with the identifications and technical notes by Mr. F. W. True; another on the fishes, with notes by Dr. T. H. Bean; and a third on the Diurnal Lepidoptera, in conjunction with Mr. Harry Edwards.—J. A. A.

Jordan's New Manual of Vertebrates.*—The fifth edition of President Jordan's 'Manual of the Vertebrates' of the northeastern United States is practically a new work, not only being entirely rewritten and greatly enlarged, but so far extended in scope as to take in not only a considerably enlarged area (Missouri, Iowa, Minnesota, and the Provinces of Canada), but the marine species of the Eastern Coast from North Carolina to Nova Scotia. While presenting the same size and appearance externally as former editions, it contains probably double the amount of text, through the use of smaller type and a much larger type bed. The plan of the work is also essentially modified, and its general character greatly improved, through the fuller diagnoses given, and the analytical keys being based on structural characters instead of on artificial distinctions. The order of arrangement is also inverted, the fishes being treated first and the mammals last. The latest conclusions seem to be given in respect to questions of classification and nomenclature, and the work thus authoritatively brought down to date. For birds the arrangement and nomenclature of the A. O. U. Check-List is adopted. The reception given former editions shows that the work meets a want, which the new edition must fill to a much greater degree than has been the case heretofore, thus rendering the 'Manual' still more worthy of the large patronage it is sure to receive. The bird part is especially to be commended, in so far as such limited space can give salient and distinctive characters, it being indeed a *multum in parvo*.—J. A. A.

Sharpe's Birds in Nature.†—The present volume is elegantly gotten up, as regards typography, paper, and exterior, with elaborate designs in

*A Manual of the Vertebrate Animals of the United States, including the District north and east of the Ozark Mountains, south of the Laurentian Hills, north of the southern boundary of Virginia, and east of the Missouri River, inclusive of Marine Species. By David Starr Jordan, President of the University of Indiana. Fifth Edition, entirely rewritten and enlarged. Chicago: A. C. McClurg and Company. 1888. 8vo, pp. iii + 375.

†Birds in Nature. By R. Bowdler Sharpe, F. L. S., F. Z. S., Zoölogical Department, British Museum, etc., etc., etc. With Thirty-nine Colored Plates, and other Illustrations, by P. Robert. Boston: Estes & Lauriat. 1888. 4to. pp. v + 78.

the way of initial letters and tail-pieces for each chapter, and with full-page plates redundant in paint. The book is apparently intended as an ornamental gift-book for the holiday season. The text is no discredit to the eminent author whose name appears on the titlepage, and his biographies of the forty species of European birds treated form entertaining and instructive matter for the general reader, for whom they were doubtless intended, rather than for professional ornithologists. Mr. Robert's contribution of plates and tail-pieces will scarcely bear criticism from the technical standpoint, most of them having been too evidently copied from rather badly stuffed museum specimens, including their defects, with a back-ground which may be called striking rather than artistically effective. Doubtless the book will not lack admirers among the class it is intended to entertain.—J. A. A.

Birds of Nova Scotia.*—This annotated list is the latest contribution to the bird lore of the peninsular Province, by one whose name is already known in that connection. Mr. Downs has given us "as the result of sixty-six years of *practical field work*," a list of 240 species of birds, of which 4 are added on authority, 3 on the grounds of probability, and 3 without a word of comment, reducing those presumably observed by the writer to 230. The number seems very small, as it would be an easy matter to name over twenty additional species that certainly should have been found; indeed reference to the published papers of another Acadian naturalist (Dr. J. Bernard Gilpin) shows that nearly a dozen species have been omitted in the *Birds of Prey* and the *Shore-birds* alone. It is difficult to understand why Mr. Downs should leave out such species as the Wheatear, Bicknell's Thrush, Ipswich Sparrow, etc., since he was not confining himself to his own personal observations. The last-named omission is the more strange since the species is probably without exception the most peculiar and characteristic of the whole Acadian avifauna. Our author apparently not realizing that the only value of such a list must come from its explicitness and accuracy, records without qualification such remarkable occurrences as those of *Plegadis autumnalis*, *Anas penelope*, *Ardea carulea*, etc., omitting the usual data and references, without which the records have little, if any value. This carelessness with regard to localities and dates neutralizes the value of what might otherwise have been a most interesting series of records. A notable example is his brief reference to the finding of three "Great Auks"; doubtless the facts have been recorded elsewhere, but no careful writer would think of embodying them in his work without giving the proper references. Similar remarks will apply to his notes on the Labrador Duck, Purple Gallinule, Blue Grosbeak, and several other species.

His method of indicating the breeding species (by number in an appendix) is a great mistake; the remarks that are supposed to be thus tabu-

*Birds of Nova Scotia. By Andrew Downs, M. Z. S. Edited by Harry Piers. Proc. and Trans. Nova Scotia Inst. Nat. Sci. VII, pt. ii, 1888, pp. 142-178.

lated, should have appeared in full under the names of the species to which they refer.

The general appearance of the article is excellent, and the typography almost beyond criticism, while the reserve stores of information hinted at by the brief notes are such that we cannot but hope that in the near future we may be favored with a more carefully compiled and fully annotated list that will do yet greater credit to one who has had sixty-six years of practical field work and was the correspondent and friend of Audubon and Waterton.—E. E. T.

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GENERAL NOTES.

The Present Status of Forster's Tern as a Bird of New England.—In an article on the Terns of the New England Coast published some ten years ago* I spoke of *Sterna forsteri* as a species which "though rare, is of perhaps too regular occurrence to be classed among the accidentals, for one or two specimens are reported nearly every season, usually during the month of September." Since the appearance of this article, however, I have heard of the capture of but a single additional specimen, a young bird in autumnal plumage taken Oct. 2, 1888, by Mr. J. C. Cahoon

* Bull. N. O. C. IV, 1879, p. 14.

at Monomby Island, near Chatham, Massachusetts, and now in my collection. It would seem, therefore, either that Forster's Tern has ceased to visit the New England coast at all regularly or frequently, or that its occurrence in small numbers during several successive seasons prior to 1879, was purely fortuitous. The former is perhaps the more probable hypothesis, for nearly all our water birds have decreased in numbers during the past decade, and none among them more considerably than the Terns—the chosen victims of the millinery collectors.—WILLIAM BREWSTER, *Cambridge, Mass.*

Notes on Brewster's and the Blue-footed Gannet.—Early in October, 1888, Mr. E. J. Reed of Guaymas, Mexico, did me the very great kindness of capturing alive, and presenting me with a specimen each of the above-named birds (*Sula brewsteri* and *S. gossi*). They were taken at San Pedro Martir Isle of the Gulf of California, and expressed to Fort Wingate, New Mexico, where they arrived on the 16th of the month, the Blue-footed one having died on the passage, while Brewster's was as lively as if he had just been taken.

In comparing them with Colonel Goss's admirable description of these two new species, published in 'The Auk' for July, 1888, I found them to correspond very closely. Points of the most interest were the dark brown irides in *S. brewsteri*, with their limiting circle of white, the strongly pectinated mid-anterior claws, and the beautiful shade of purplish ultra-marine blue of the feet of *S. gossi*.

After its fast of certainly four or five days I expected to see the surviving Gannet drink a quantity of water, and perhaps eat anything that was offered to it; but, no, upon being placed in a large bath tub of fresh water, it started to vigorously splash and preen itself, as a duck will do under similar circumstances, and then suddenly ceased without apparently drinking a drop, disgusted I imagine at its being *fresh*. I had to force it to eat a few ounces of venison, not having a fish at hand to give it; indeed, I myself have not seen a fresh fish for over four years. The bird was placed next out in the sun, where it seemed to enjoy itself, and arranged with its beak its wetted and rumpled plumage. If one attempted to handle it, however, it struck out vigorously with its sharp-pointed bill, and could inflict quite an ugly wound, as one of my hands will still testify. Next morning my Gannet was more cheerful than ever, but circumstances induced me to kill it with chloroform, and I removed the skins from both specimens and forwarded them to Mr. Robert Ridgway for identification. Upon dissection they proved to be females, and a casual examination of the viscera in each satisfied me that Macgillivray's account of this part of their anatomy, as given in *Aububon*, is a fairly accurate one for *Sula*, though I saw enough besides to satisfy me that a far more thorough description of the structure of these birds is demanded.—R. W. SHUFELDT, *Fort Wingate, New Mexico.*

***Histrionicus histrionicus* on Long Island, New York.**—I wish to record the capture of a specimen of *Histrionicus histrionicus* taken on Long

Island, New York, Nov. 22, 1878. The bird was a male, not quite, but almost in mature plumage, and was shot in the bay south of Freeport, Long Island, and on account of its oddity brought to me. The specimen is now in the collection of the Long Island Historical Society.—GEO. B. BADGER, *Haywards, California*.

Chen caerulescens in Massachusetts.—On October 26, 1876, I bought of Mr. Tufts, taxidermist, of Lynn, Mass., a mounted Blue Goose, the skin being still fresh, which is now in my possession.

The specimen, a young female, with white on chin only, was shot "in or near Essex Creek, West Parish, Gloucester, Mass., Oct. 20, 1876."—WM. A. JEFFRIES, *Boston, Mass.*

Baird's Sandpiper in Central New York.—While collecting at Onondaga Lake, N. Y., August 27, 1888, I secured a Baird's Sandpiper (*Tringa bairdii*). This appears to be the tenth for New York State; of the others, six have been recorded from Long Island ('Forest and Stream', Vol. X, No. 13, p. 235, May 2, 1878; B. N. O. C., Vol. VII, p. 133, 1882; Auk, Vol. II, p. 273, 1885), one from Locust Grove, Lewis County, by Mr. Henshaw (Auk, Vol. II, p. 384, 1885), and two from Fair Haven, Cayuga County, by Frank R. Rathburn (O. & O., Vol. VII, p. 133, 1882). More stragglers—if such they are—of this bird may be expected from the lakes of western and central New York, during the fall, as numbers of shore-birds visit them at that season.—MORRIS M. GREEN, *Washington, D. C.*

The Northern Phalarope (*Phalaropus lobatus*) in the Franconia Mountains, New Hampshire.—About five years ago, in September, while fishing on Profile Lake, Franconia, N. H., I observed a bird sitting on the water, feeding on winged ants, of which thousands lay on the surface. The bird was fearless, allowed me to approach it in my canoe so closely that I could easily reach it with my landing net (handle not three feet long), and was not alarmed at several attempts I made to put the net gently over him. I observed him for nearly half an hour, constantly within a few feet of him, and then left him. I did not know the bird, and several friends, ornithologists, afterward expressed a wish that I had captured or killed him for examination.

On September 22, 1888, while fishing on Lonesome Lake (about two miles from Profile Lake, on Mt. Cannon, nearly 3000 feet above sea-level), I saw another specimen of the same bird swimming duck-like among the sedges on the edge of the lake. He was equally fearless, allowing me to approach within hand reach, without alarm and without ceasing his employment, which was feeding on the seeds of the sedges. There was no mistake, in either case, as to what the bird was eating—in one case ants, in the other seed. In the latter case I greatly enjoyed watching the rapid and graceful action of the bird as he picked off the seeds, frequently stretching up, almost standing on the water, and reaching to seeds on high sedges. After ten minutes I concluded with great

reluctance to kill him, which I did by striking him gently on the head with a short stick. Ornithologists who examined him pronounced him the Northern Phalarope. At their request I make this note of the facts.—W. C. PRIME, *New York City*.

Occurrence of the Western Sandpiper (*Ereunetes occidentalis*) in Numbers on the Coast of Massachusetts.—Among some Waders collected in 1888 on Monomoy Island, near Chatham, Massachusetts, I find four unmistakable specimens of *Ereunetes occidentalis*. Three of them, all females, were taken by Mr. J. C. Cahoon, one July 19, the other two Sept. 19. The fourth, a male, was shot Sept. 1 by Mr. Whiting. The July bird is an adult in richly colored and but little worn breeding plumage. The others are young in summer dress.

Mr. Cahoon tells me that he killed many specimens of the *E. occidentalis* at Monomoy during July, August, and September, 1888, but supposing at the time that they were merely large, long-billed examples of *E. pusillus*, he preserved only the three above mentioned. His impression is that they were nearly as numerous at times as *E. pusillus*. There is, I believe, but one previous record of the occurrence of *E. occidentalis* in Massachusetts, viz., that by Mr. Henshaw* of the capture of a specimen on "Long Island, Boston Harbor, Aug. 27, 1870."—WILLIAM BREWSTER, *Cambridge, Mass.*

Sandpipers at Sea—A Correction.—On looking at my note on 'Sandpipers at Sea' in 'The Auk,' Vol. III, I find at commencement of the first paragraph on page 132 "The *fastest* run up to 12 M. on May 8, was 582 miles." This should read "The *distance* run", etc. 582 miles a day for an old French steamer would be pretty good work.—WM. A. JEFFRIES, *Boston, Mass.*

Remarkable Flight of Killdeer (*Agialitis vocifera*) near Portland, Maine.—On the afternoon of Wednesday, November 28, 1888, several flocks of Killdeer were seen by Captain Trundy, of the U. S. Life Saving Service, near his station, on the extreme point of Cape Elizabeth, Maine. Twenty birds, which were shot down without difficulty, were sent to Portland and offered for sale at one of the markets. On the following day, Captain Trundy tells me, hundreds of the Plover were to be seen along the shores of the Cape, and on Richmond's Island, a mile or two west of the station. They disappeared on November 30, leaving stragglers behind, however, the last of which was shot by one of the Life Saving crew on December 4, and kindly presented to me.

Such a flight of Killdeer in Maine—where the bird is well known to be rare—has probably not occurred within the memory of living sportsmen. It is doubtless to be attributed to the violent northerly storm that prevailed in eastern North America on November 25, 26 and 27.—NATHAN CLIFFORD BROWN, *Portland, Maine*.

*Auk, Vol. II, No. 4, 1885, p. 384.

Note on *Ægialitis meloda circumcincta*.—In looking over the back numbers of 'The Auk' which have accumulated on my desk during my late long absence from America, I find a notice* of the occurrence of *Ægialitis meloda circumcincta* on the Atlantic coast, by Mr. J. A. Allen. Amongst other examples of this variety, Mr. Allen writes that he has examined "two skins of typical *circumcincta*" taken by myself in Scarborough, Maine.

It is proper for me to state that I had never made mention of these examples, for the reason that I doubted the validity of the so-called 'inland form.' The evidence of such Maine birds as have fallen into my hands is certainly against it. I cannot remember that I have ever seen more than three specimens, taken on the coast of Maine, in which the neck band was wholly interrupted in front; and while the band, when complete, is not always so broad as in the skins examined by Mr. Allen, it is often so. The two forms distinctly intergrade in Maine. According to Mr. Allen,† they come very near intergradation in New Jersey. One cannot help believing, from the numerous instances, published and unpublished, of the occurrence of *circumcincta* on the Atlantic coast, that the same thing may be true of other localities. All this, of course, is not enough to deprive the belted bird of its name; but it is perhaps enough to render its right to a separate name doubtful.—NATHAN CLIFFORD BROWN, *Portland, Maine*.

The Turkey Buzzard in Massachusetts.—Thursday morning, Sept. 9, 1888, a farmer in West Falmouth, Mass., shot in his barnyard a fine specimen of the Turkey Buzzard (*Cathartes aura*). I happened to be in the town when the bird was shot, and secured it. It is a female in very good plumage. The bird was seen by several persons about the town before it was shot, and from them I learned that it came from the north. It had evidently not eaten much recently.—EDWARD C. MASON, *Arlington, Mass.*

Krider's Hawk (*Buteo borealis kriderii*) on the Coast of Georgia.—Mr. W. W. Worthington has just sent me a perfectly typical specimen of Krider's Hawk, which he took on Sapelo Island, Georgia, February 16, 1888. The bird is a young or, at least, immature male. If I am not mistaken, this subspecies has not been found before in any of the Atlantic States.—WILLIAM BREWSTER, *Cambridge, Mass.*

First description of the Egg of *Glaucidium phalænoides*, Ferruginous Pygmy Owl.—On May 2, 1888, my collector took an adult female and one egg of this Owl at Cañon del Caballeros, near Victoria, Tamaulipas, Mexico. The locality is high and at the base of the more precipitous mountains. The nest was in a hollow tree, and contained but a single fresh egg. The egg is white, shaped like that of a *Megascops*, measures

*Vol. III. p. 482.

†l' c.

1.05 X .90 inches, and is in my collection with the parent bird. It will be observed that in size it is very close to the egg of *M. whitneyi*.—GEO. B. SENNETT, *New York City*.

[A New Generic Name for the Elf Owl].—*Micropallas*, Strigidarum genus novum = *Micrathene*, Coues, 1866, nec *Micrathena*, Sundevall, Arachn.—ELLIOTT COOPER, *Washington, D. C.*

Sphyrapicus ruber Breeding in Coniferous Trees.—In the July number of 'The Auk' (Vol. V, No. 3, p. 234) I stated that I doubted very much that this species ever bred in coniferous trees of any kind. In a letter recently received from Mr. A. H. Anthony, a well-known western ornithologist, he informs me that *S. ruber* was a rather common species in Washington County, Oregon, during 1884 and 1885, and that he found a pair nesting in a big fir stub, fully fifty feet from the ground. He writes me that as he was unable to take the eggs he did not molest the birds, but that there could be no doubt of their identity, as he watched them from the first day's excavating till they began to incubate.—C. E. BENDIRE, *Washington, D. C.*

Occurrence of Traill's Flycatcher near Washington, D. C.—Three specimens of *Empidonax pusillus traillii* taken this spring, are probably the first ever obtained from this locality. Although this Flycatcher is mentioned in every list of the birds of the District of Columbia and vicinity as occurring here, there is no evidence that the authors had ever seen the bird or taken a specimen. One was taken by the writer on May 13, 1888, at Potomac Run, Alexandria County, Virginia, another by Mr. Ridgway at Laurel, Maryland, on May 18, and the third by myself on the 19th, in Virginia, opposite Georgetown, D. C. Several others were subsequently seen and identified.—WILLIAM PALMER, *Washington, D. C.*

Early Appearance of Empidonax minimus at Portland, Maine.—The spring of the year 1888 was a bad season for early arrivals at Portland, most of the earlier birds being very much delayed. Yet some did come early, and I think the most remarkable example was the Least Flycatcher (*Empidonax minimus*). Previously its earliest recorded arrival was May 5 (N. C. Brown, Proc. Port. Soc. Nat. Hist., 1882, p. 12), but on the morning of May 2, 1888, a chilly day with the thermometer only 36° Fahrenheit, and snow falling steadily, I saw one in a large orchard inside the city limits.—JOHN C. BROWN, *Portland, Maine*.

Second Occurrence of the Prairie Horned Lark in Eastern Massachusetts.—In recording* not long since the capture of three specimens of *Otocoris alpestris praticola* at Revere Beach, Massachusetts, I ventured

*Auk, Vol V, No. 1, Jan., 1888, pp. 111, 112.

to suggest that this form might prove to be a regular if rare migrant through the eastern portions of our State. Some added probability is given this surmise by the fact that I have just taken two more perfectly typical examples of *praticola* at Great Island near Hyannis, Mass., Dec. 15, 1888. Both are males, one an old, the other a young bird. They were in flocks of *O. alpestris* which very possibly contained still other specimens of *praticola*, but I had neither time nor inclination to settle this point definitely by shooting a large number of birds, the only possible way, for the two forms could not be distinguished when living. As it was I killed twenty-three *alpestris* to get the two *praticola*, but none of the former were wasted.—WILLIAM BREWSTER, *Cambridge, Mass.*

Molothrus ater in Massachusetts in December.—On Dec. 8, 1888, I shot two female Cowbirds in Belmont, Mass. For records of this bird in Massachusetts in January, see 'The Auk,' Vol. V, 1888, p. 207.—WALTER FAXON, *Museum of Comparative Zoölogy, Cambridge, Mass.*

The Cowbird (*Molothrus ater*) as a Fly-destroyer.—On the 20th of October my little son shot a male Cowbird, winging it slightly; the bird was exceedingly active and fought most vigorously when taken in the hand, pecking savagely, but the moment it was placed on the floor, or on a table, it quieted down, and would step promptly and fearlessly up to an extended hand, and if a fly were presented, pick it off and stand patiently to wait for more. It caught flies with unerring snaps of its beak, as they flew around its head, buzzed against the window panes, or rested on the floor or table top; it drank freely of water, and delighted in picking up fine grains of earth and sand between its meals of flies. My children began to feed it promiscuously, but it refused everything except flies. They took it from room to room, when it was turned loose, and at once began its incessant war upon flies, soon catching every one that was not roosting on the ceiling. Finally after six or seven days of this captivity the supply of live flies gave out, and the bird was taken into the summer kitchen where these insects were in the greatest abundance and where large numbers were dead, having been whipped by the servants and the children; the Cowbird ate very heartily of these dead flies, and the next morning was found dead in its cage, in which it had been regularly shut up and covered every night.

It became fearless, and was easily taken up in the hand, after it had been in the children's hands about a day; it would stand facing them on a table top, and take flies from their hands as rapidly as they could be passed over.—HENRY W. ELLIOTT, *Smithsonian Institution, Washington, D. C.*

Notes upon the Sudden Appearance in Numbers of the Evening Grosbeak at Fort Wingate, New Mexico.—For four years and more (1884-1888) I have made constant and careful observations during all seasons upon the birds that are to be found in the country about Fort Wingate, New

Mexico. Much of this time I have rambled over this region almost daily, collecting birds and mammals and making extended notes upon them. During the first three years the Evening Grosbeak (*Coccothraustes vespertina*) was not to be found in the vicinity during either the vernal or autumnal migrations, and I never so much as heard its note. My mind was about satisfied that the species was not a visitant to this part of the range of the Rocky Mountains, when the doubt was suddenly dissipated last month (October, 1888) while I was out collecting in the pine forests about two miles from the station. There I met with a little party of four individuals, all females, and in wretched plumage; three of these were secured. A little later and in a different locality, this time some two miles in the opposite direction from the Fort, I came upon a very handsome pair, and succeeded in taking the male. He was an old one in fine autumnal feather. I saw no more of them until yesterday (Nov. 10, 1888), at which time I was with my gun in the cedar woods quite close to my house. The day was clear and the temperature moderate, though heavy frosts had occurred on the two preceding days and nights. The woods were actually alive with Robins (*M. m. propinqua*), feeding upon the cedar berries, and I soon discovered that numbers of Evening Grosbeaks were with them. At first I met with these latter in small flocks, from five to ten in number, but as I came into more favorable localities, they appeared in straggling parties consisting of from thirty to a hundred individuals. They mingled with the Robins both in the trees and in the loose flocks that kept passing overhead, and frequently gave vent to their loud and shrill whistle. There was no trouble in approaching them, while feeding upon the berries, as they appeared to be quite unsuspicious and not easily alarmed. My collecting basket soon contained a fine assortment of these truly beautiful creatures, they being in rich autumnal dress, and only occasionally was one to be met with that had not quite completed this plumage. The females differed considerably in their coloring, while in some of the males I observed that the rich orange band of the forehead and superciliary line was carried around in diminishing breadth to fairly meet the stripe of the opposite side at the occiput and completely blend with it there. In the males, too, the plumage of the legs is black, with the feathers each narrowly bordered with yellowish green; this feature is not usually described by ornithologists. Only a few moments ago I made up some half dozen skins of these birds, and my two sons each made a pair more apiece, all carefully selected. I was not a little surprised to find my experiences both in this and in shooting the specimens to be at complete variance with those of Dr. Merrill, as mentioned by him in a recent issue of 'The Auk' (Oct. 1888, p. 357). Neither I nor my sons found any difficulty whatever in making capital skins of these specimens, and I am quite sure I did not lose more than a feather to a bird in those that I prepared, and the skin in none of them appeared to me to be unusually thin. Moreover, some of them were killed with No. 8 shot, and in falling bumped down through the pine trees without any apparent damage, and only with the loss of a feather or two. It is diffi-

cult for me to account for this difference in our observations, infinitely the more so when the statement comes from the pen of such an accurate describer as is Dr. Merrill.

This extraordinary flight of these Grosbeaks here, convinces me that either the bird is inclined to be at times very erratic in its migrations, or else it may have to do with the approaching season, perhaps indicating a coming winter of unusual severity.

An excellent series of skeletons rewarded my collecting, and as I predicted in my letter in the October 'Auk', the *secondary palatine processes* are absent, the entire skull much resembling that part of the skeleton in *Coccothraustes vulgaris*, as figured for us by Huxley.—R. W. SHUFELDT, *Fort Wingate, New Mexico*.

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Loggerhead Shrike at Bridgeport, Connecticut.—The following are the records of the Loggerhead Shrike at Bridgeport, Conn.: late in August, 1880, one seen; late in August, 1885, two seen together; August 29, 1888, two seen together, one of which I shot. Mr. J. A. Allen pronounced this a *Lanius ludovicianus excubitorides* and a bird of the year. All these birds were seen at the sea beach. The gizzard of the one killed was filled with grasshoppers.—C. K. AVERILL, JR., *Bridgeport, Conn.*

First Occurrence of the Philadelphia Vireo near Washington, D. C.—This bird is certainly rare with us, having until this spring escaped notice though expected and looked for. While collecting on the evening of May 17, 1888, on the Virginia side of the Potomac near the new bridge, I took a specimen which was industriously feeding with Red-eyed Vireos in the willows on the marshy bottom lands.—WILLIAM PALMER, *Washington, D. C.*

Unusual Nesting Site of Dendroica virens.—There stands, a little aside from a public road on Cape Elizabeth, Maine, on the top of a small hill-lock, some distance from any woods, a small pagoda of two stories, which is almost nightly filled by noisy pleasure-seekers. About it a grape-vine grows luxuriantly, and here, scarcely ten feet from the ground and only six from the floor of the piazza, a pair of Black-throated Green Warblers built their nest in the spring of 1888. Placed on the main stem of the vine, and so surrounded by leaves and twigs as to be absolutely invisible from the outside, it was nevertheless in plain sight the moment one stepped inside the sheltering vine upon the piazza. When I found the nest on June 29 it contained two eggs and one young bird, and on July 1 the eggs had hatched.—JOHN C. BROWN, *Portland, Maine*.

A Rare Bird in Chester Co., South Carolina.—I had been waiting all the morning of Oct. 11, 1888, for the cessation of the heavy gale and driving rain that had begun during the previous night, for I was anxious to get out into the woods and see what effect the storm was having on the

returning migrants. By midday the wind had subsided and the rain had become a mere drizzle. Shortly after 1 P. M. I ventured out, directing my steps to the nearest woods. But few birds were found, and I continued my search until I came to an extended body of scrubby black-jacks, pines, and red cedars about a mile and a half from home. Here I discovered a small gathering of Tufted Titmice, Carolina Chickadees, Ruby-crowned Kinglets, and several species of Warblers. I drove the gathering about through the low growth, shooting the birds that were not instantly recognized, until I reached an edge bordering on an old-field where I noticed a small bird fly into a low cedar. It was promptly shot. A glance was sufficient to reveal the fact that it was wholly new to me. I saw that it was a Warbler and a *Dendroica*. I began to revolve in mind the distinctive characters of each member of the genus until I had eliminated all save one—the one I had suspected it to be, for I had in memory Mr. Maynard's illustration of the female Kirtland's Warbler ('The Birds of Eastern North America,' pl. xvii). I hastened home to my library, and found that I had worked it out truly and that I had indeed "the rarest of all the Warblers" inhabiting the United States.

This, if I have read the records aright, is the third instance of *Dendroica kirtlandi* having been taken in the Atlantic States, and the second of its capture in South Carolina.—LEVERETT M. LOOMIS, *Chester, S. C.*

A Peculiar Nest of *Cinclus mexicanus*.—In an exceedingly interesting collection of nests and eggs recently received from Mr. Denis Gale, of Gold Hill, Colorado, a gift to the National Museum at Washington, D. C., an interesting Water Ouzel's nest, deserves mention.

Usually the Ouzel's nest is a domed, oven-shaped structure, ten to twelve inches through at its base, and from seven to eight inches high.

The nest now before me, No. 23,685, Nat. Mus. Collection, taken in Boulder Co., Colorado, May 31, 1888, and containing three fresh eggs at the time, was placed against one of the stringers, and close up to, and under the plank platform of a bridge, which saved the birds the trouble of doming it, in fact there was no room to do so. A full view of the interior can be had. The front face of this nest is five and a half inches high, by eight and a half inches wide. The depth of the nest gradually diminishes so that the rear of it is barely two inches high by eight inches wide. A side view of the structure gives it almost a triangular appearance. Outwardly the nest is principally composed of decayed plant fibres and lichens (*Hypnum* sp.?) used in a wet condition, and considerable sandy clay is mixed in amongst the outer portions of the structure which is covered all around with this material excepting at the entrance. This is near the top of the nest, four inches from the base, in the centre of the structure, and is two and one-half inches wide and one and a half inches high. The inner lining of the nest is composed of pine needles and stalks of grasses, amongst which that of the timothy grass (*Phleum pratense*) is plainly distinguishable. The inner cavity of the nest is three and a quarter inches wide by two and one-half inches deep, circular, and compactly built.—CHAS. E. BENDIRE, *Washington, D. C.*

Troglodytes ædon. House Wren, Breeding in a Sand Bank.—Of all the quaint places this familiar little busybody could choose in which to lay its eggs and rear its young, one might imagine a sand bank, the common home of Bank Swallows and Kingfishers, to be the most singular and unusual. The fact that a House Wren might be found thus breeding may not be surprising to all observing ornithologists, but it certainly must be to most of them. On August 1, 1888, while Dr. B. H. Warren, State Ornithologist of Pennsylvania, and I were driving up one of the ravines leading from the beautiful Bay at Erie, Pennsylvania, the Doctor's keen eye caught sight of a House Wren as it darted into a Kingfisher's hole in the almost perpendicular bank about ten feet from the roadway. By the aid of a fence rail and easy digging the young, already able to fly, were caught in the hand, and the nest secured. I had already been interested in observing a pair of Wrens that had taken possession of a Bluebird's nest in the hollow limb of an apple tree in the dooryard of my summer house, but the taking for its own domicile this home of our large Kingfisher cast completely into the shade all I had known of the bird's housekeeping achievements, in which tin pails, kettles, skulls, and the like had figured.—GEO. B. SENNETT, *New York City*.

Saxicola œnanthe in Louisiana.—I have in my collection a mounted specimen of *Saxicola œnanthe*, a male in winter plumage, or a young male, which was shot within the limits of the City on September 12, 1888. Several others were seen on the same day, but only this one was procured. The bird is entirely out of its range.—GUSTAVE KOHN, *New Orleans, La.*

Summer Birds at Bridgewater and Moultonboro', New Hampshire.—In connection with Mr. Faxon's list of birds observed at Holderness, New Hampshire (See Auk, Vol. V. p. 149), the following observations of my own made at Bridgewater and Moultonboro', N. H., may be of interest, as they seem to give quite different results. Bridgewater is about six miles to the southwest of Holderness, and Moultonboro' about twelve miles to the east-southeast.

Birds observed at Bridgewater, N. H., July 12—Sept. 4, 1883.

Ardea herodias.—One or two seen.

Ardea virescens.—Not common.

Actitis macularia.—Not common.

Bonasa umbellus.—Common.

Circus hudsonius.—Not common.

Halizæetus leucocephalus.—One seen.

Coccyzus erythrophthalmus.—Common.

Ceryle alcyon.—Not common.

Dryobates villosus.—Quite common.

Dryobates pubescens.—Quite common.

Sphyrapicus varius.—Seen several times.

Colaptes auratus.—Quite common.

Antrostomus vociferus.—Quite common.
Chordeiles virginianus.—Very common.
Chætura pelagica.—Common.
Trochilus colubris.—Not common.
Tyrannus tyrannus.—Common.
Sayornis phœbe.—Quite common.
Contopus virens.—Very common.
Empidonax minimus.—Quite common.
Cyanocitta cristata.—Not common.
Corvus americanus.—Quite common.
Dolichonyx oryzivorus.—Not common.
Agelaius phœniceus.—Not common.
Icterus galbula.—Quite common.
Carpodacus purpureus.—Common.
Spinus tristis.—Common.
Poocætes gramineus.—Common.
Spizella socialis.—Common.
Spizella pusilla.—Very common.
Junco hyemalis.—A few on high hills.
Melospiza fasciata.—Common.
Pipilo erythrophthalmus.—Several seen on hills.
Habia ludoviciana.—Not common.
Passerina cyanea.—Very common.
Piranga erythromelas.—Common.
Progne subis.—A few seen.
Petrochelidon lunifrons.—One colony seen.
Chelidon erythrogaster.—Common.
Ampelis cedrorum.—Common.
Vireo olivaceus.—Very common.
Vireo flavifrons.—Not common.
Vireo solitarius.—Common.
Mniotilta varia.—Quite common.
Helminthophila ruficapilla.—Common.
Compsothlypis americana.—Quite common.
Dendroica æstiva.—Not common.
Dendroica coronata.—A few young seen Aug. 16.
Dendroica maculosa.—One seen Sept. 1.
Dendroica pennsylvanica.—Not common.
Dendroica virens.—Very common.
Dendroica vigorsii.—One shot Aug. 21.
Seiurus aurocapillus.—Common.
Geothlypis trichas.—Quite common on side-hills.
Setophaga ruticilla.—Quite common.
Galeoscoptes carolinensis.—Common.
Harporhynchus rufus.—Common.
Sitta carolinensis.—Quite common.
Parus atricapillus.—Common.

Turdus fuscescens.—Quite common.
Turdus aonalaschkæ pallasii.—Common.
Merula migratoria.—Common.
Sialia sialis.—Common.

Birds observed at Moultonboro', N. H., July 21—August 15, 1885.

Urinator imber.—Several seen; one young in down captured.
Ardea herodias.—Tracks and one feather.
Actitis macularia.—A few seen.
Coccyzus erythrophthalmus.—Common.
Dryobates pubescens.—Not common.
Colaptes auratus.—Quite common.
Antrostomus vociferus.—Not common.
Chordeiles virginianus.—Not common.
Chætura pelagica.—Very common.
Tyrannus tyrannus.—Quite common.
Myiarchus crinitus.—A few seen.
Sayornis phæbe.—Common.
Contopus virens.—Quite common.
Empidonax pusillus traillii.—A few seen.
Empidonax minimus.—Not common.
Cyanocitta cristata.—Quite common.
Corvus americanus.—Quite common.
Dolichonyx oryzivorus.—Quite common.
Agelaius phœniceus.—Not common.
Carpodacus purpureus.—Not common.
Spinus tristis.—Common.
Poocætes gramineus.—Very common.
Zonotrichia albicollis.—Two heard singing.
Spizella socialis.—Common.
Spizella pusilla.—Common.
Junco hyemalis.—Quite common on mountains.
Melospiza fasciata.—Common.
Melospiza georgiana.—Not common.
Pipilo erythrophthalmus.—Quite common.
Passerina cyanea.—Very abundant.
Piranga erythromelas.—One heard.
Progne subis.—Common.
Chelidon erythrogaster.—Very common.
Ampelis cedrorum.—Very common.
Vireo olivaceus.—Common.
Vireo solitarius.—Not common.
Dendroica coronata.—A few on Ossipee Mt.
Dendroica pennsylvanica.—One seen.
Dendroica virens.—Not common.
Seiurus aurocapillus.—Quite common.
Geothlypis trichas.—Quite common.

Setophaga ruticilla.—Quite common.

Galeoscoptes carolinensis.—Quite common.

Harporhynchus rufus.—One seen.

Sitta carolinensis.—Quite common.

Parus atricapillus.—Common.

Regulus satrapa.—A few seen on Ossipee Mt.

Regulus calendula.—A few seen.

Turdus aonalaschkæ pallasii.—Quite common.

Merula migratoria.—Common.

Sialia sialis.—Common.

One each of *Halizætus leucocephalus* and *Vireo gilvus* was observed at Centre Harbor in passing through. — FRANCIS H. ALLEN, *West Roxbury, Mass.*

CORRESPONDENCE.

[Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.]

The proper Name for the Genus *Melanipitta* of Schlegel.

EDITORS OF THE AUK:—

Dear Sirs: In the 14th volume of the "Catalogue of the Birds in the British Museum," p. 449, published in 1888, Dr. P. L. Slater has proposed to substitute *Coracopitta* for *Melanipitta* of Schlegel (type *Pitta lugubris* Rosenb.), the latter name being preoccupied. I would call attention, however, to the fact that as early as 1885 I replaced *Melanipitta* by *Mellopitta* for the same reason, my name consequently having the priority over that of Dr. Slater. The change was made in the 'Standard Natural History,' IV, Birds, p. 466.

Yours very truly,

LEONHARD STEJNEGER.

Washington, D. C., Dec., 1888.

NOTES AND NEWS.

MR. HENRY STEVENSON, of Norwich, England, a Corresponding Member of the A. O. U., died August 18, 1888. In 1864 he was elected a member of the British Ornithologists' Union, and was one of the founders, and for many years President of the Norfolk and Norwich Naturalists' Society, to whose 'Transactions' he was a frequent contributor, as also to the pages of the 'Zoölogist.' As an ornithologist he is perhaps best known as the author of a work entitled 'The Birds of Norfolk,' Vol. I of which appeared in 1866, and Vol. II in 1870. the work remaining unfinished at the time of his death. "To those who en-

joyed his friendship, Mr. Stevenson was a delightful companion; his powers of observation seemed almost intuitive, while his genial nature endeared him to all."

COUNT AUGUST FRIEDRICH MARSCHALL, a Corresponding Member of the American Ornithologists' Union, died October 11, 1887, in his eighty-third year. During his long scientific career he was particularly interested in geology, but zoölogy is also indebted to him for many valuable contributions, one of the most important of which is his '*Nomenclator Zoologicus*' (Vienna, 1873). As an original ornithological author he was not prolific, most of his contributions to ornithology consisting of excerpts from other authors relating to birds belonging to the Austro-Hungarian fauna. With August von Pelzeln he was joint author of the '*Ornis Vin-dobonensis*' (Vienna, 1882).

News from Central Asia travels slowly, and beyond the mere notice that our distinguished Corresponding Member, the celebrated Russian traveller, General Prjevalsky, is dead, but little is as yet known as to the particulars of the sad event. We gather the following notes chiefly from a recent account by his friend Mr. Venjukoff.

Nicolas Michailovitch Prjevalsky (also often written Przewalski) died in Karakol on Nov. 1 (Oct. 20), 1888, while engaged in the preparations for his departure to Thibet, in the full vigor of his manhood, being only fifty years of age. While still a young man he manifested great interest in travel and exploration, and shortly after leaving the Military Academy he was entrusted with the exploration of the valley of the Ussuri in eastern Siberia (1867-1868). Since then he has undertaken four great expeditions to Central Asia in which he gained a world-wide fame as one of the most intrepid, indomitable, and successful travellers who ever attempted to penetrate to the 'back-bone' of the Eurasian continent (1870-1873, China; 1876-1877, the Central Asian desert region, discovering the position of Lake Lob-nor; 1879-1880, exploring Kuku-nor and northeastern Thibet; 1883-1885, studying the orography of the Kuen-lun, from the sources of the Yellow River to Khotan). But unlike many other travellers, whose only aim is to 'discover' new countries, he also studied their natural history, and if we consider the enormous difficulties of transportation in those regions we can but admire his truly Russian pluck in bringing back to St. Petersburg 30,000 specimens of natural history objects, of which 5,000 specimens were birds, representing 430 species, besides 400 eggs. The short intervals between his great expeditions did not leave him time to work up all of this enormous material, yet he found leisure to publish several important ornithological papers, chief among which are his '*Materials for the Avifauna of Mongolia and the Tangatan Country*' (published in 1876, and translated in Rowley's '*Ornithological Miscellany*,' Vol. II), and a paper '*On new species of Central-Asian Birds*' (*Ibis*, 1887, pp. 401-417), for, as Prjevalsky himself observes, ornithology was one of the chief objects of his special investigations. It is the more to be regretted that he should not have lived to undertake the

last-planned expedition to the capital of Thibet. As the Russian authorities are determined not to abandon the expedition, it is to be hoped that it will be carried out in the spirit of its originator. We notice with great satisfaction that the St. Petersburg Academy of Sciences has begun a work which will be a grand monument to the lamented explorer, the first part of a great work, in Russian and German, entitled, 'Wissenschaftliche Resultate der von Przewalski nach Central Asien unternommenen Reisen', having just appeared, containing a portion of the mammals (*Rodentia*).

THURE KUMLIEN, of Milwaukee, Wisc., an Associate Member of the A. O. U., and one of the older ornithologists—a valued correspondent of the late Professor Baird and Dr. Brewer—died recently at his home near Milwaukee. A fuller notice of his life and ornithological work is necessarily deferred, the required data having unexpectedly failed to come to hand.

WILLIAM L. BREESE, recently elected an Associate Member of the A. O. U., died at his home in Islip, Long Island, Dec. 7, 1888, in his thirty-seventh year. Mr. Breese was a well-known Wall-street broker, of the firm of Breese and Smith, and a son of Commodore Breese. Although little known as an ornithologist, he having published but little, the study of birds was one of his pastimes, and he had brought together quite a collection of the birds of Long Island. He was prominent in social, yachting, and athletic circles, and highly esteemed.

AT THE meeting of the American Ornithologists' Union recently held in Washington the matter of revising the proposed additions to the A. O. U. Check-List of North American birds, together with sundry suggested changes of nomenclature made since the publication of the Check-List, was referred to the Committee on Publications, with authority to publish the results of their work at the earliest practicable date, as a 'Supplement, to the A. O. U. Code and Check-List, and uniform with it as regards matter and typography. The Committee held a six days' session, ruling upon upwards of one hundred distinct questions. The status of the newly described species and subspecies, and the claims to admission of a number of extra-limital species were duly considered, as also a number of proposed changes in generic, subgeneric, and specific names. The preparation of the manuscript was provided for, as also the early publication of the report, in the hope of issuing it early in the year 1889.

The Union also voted that hereafter it shall be the duty of the Committee on Publications to act in a similar manner at each meeting of the A. O. U. on the proposed additions and changes of nomenclature made during the preceding year, and that it shall make provision to have laid before it the material (specimens and other evidence) by consideration of which the merits of each case may be respectively determined.

THE COUNCIL of the A. O. U. decided at its late meeting in Washington to issue an abridged edition of the Check-List, consisting of the scientific and common names, the serial numbering, and the 'concordance,' omitting

the bibliographical references and the habitats: the abridged edition, however, to include the additions and changes of the 'Supplement,' interpolated in their proper places. It will be printed on fine paper, and on one side of the page only, in order that it may be conveniently used for labelling purposes when desired, or the blank pages, when the list is used merely for a check-list, may be utilized for additions or other notes. This abridged list is already in the hands of the printer, and its publication may be looked for during January, 1889.

IN ORDER to add interest to the next meeting of the A. O. U., to be held in New York City next November, and also to advance our knowledge of certain obscure groups of birds, the Union decided to instruct the Committee of Arrangements for that meeting to make this a special feature of the meeting. The Committee decided to select the genus *Otocoris* (the Horned Larks), the Red Crossbills (*Loxia curvirostra* group), and the Thrushes known as *Turdus aliciae* and *Turdus aliciae bicknelli*, as the groups to be considered at the New York meeting. Mr. Robert Ridgway will have the matter especially in charge, to whom, as the time for the meeting approaches, it is hoped abundant material may be forwarded. Probably at the close of the meeting an informal sort of indoor 'field-day' will be arranged for the examination and comparison of the material thus brought together, in which examination all the members present can participate. It is hoped members will freely loan such material as they may have, bearing upon these groups, that light may thus be thrown upon the status and relationship of some of these obscure forms.

THE DESIRABILITY of adopting some uniform method of measuring birds having been brought to the attention of the Council of the A. O. U., by a letter on the subject addressed to it by Col. N. S. Goss, the Council appointed a Committee, consisting of Dr. Coues, Mr. Ridgway, Mr. Cory, Dr. Merriam, and Dr. Stejneger, to prepare a report on the subject to be presented at the next meeting. The Committee at its first session discussed the matter at some length, deciding some general matters, and referring special points to a subcommittee, consisting of Mr. Ridgway and Drs. Merriam and Stejneger, with instructions to prepare directions, illustrated with diagrams, for taking measurements of the bill and tail, in reference to which it is found that the systems employed by different authors widely vary. It is thus evident that a uniform method is highly desirable, and it is hoped the Committee will be able to formulate one which can be commended for general adoption.

THE COMMITTEE of the A. O. U. appointed at the Boston meeting to incorporate the Union under the laws of the State of New York (see Auk, Vol. V, p. 97), found that incorporation under the laws of this State would render it necessary to hold the annual meetings of the Union always in the State of New York. This being contrary to the desire of the Union, the Committee advised incorporation under the laws of the District of Columbia, where it would be subject to no such restriction. In accordance with this suggestion the necessary steps to incorporate in Washing-

ton were taken during the late session of the Union in that city, and a certificate of incorporation was duly received and filed, the Union at once entering upon its career as a corporate body.

AT A MEETING of the Nuttall Ornithological Club on December 3, 1888, the following officers were elected for the ensuing year: President, William Brewster; Vice-President, William A. Jeffries; Secretary, Arthur P. Chadbourne; Corresponding Secretary, H. A. Purdie; Treasurer, C. F. Batchelder; Editor, Montague Chamberlain.

The readers of 'The Auk' will be gratified to know that the Nuttall Club, to whose fostering care this journal long owed its existence, continues with advancing years to gain in strength and activity. The attendance at the meetings has been much fuller and more regular of late years, although a large proportion of the members live at some little distance from Cambridge. The following are Resident Members of the Club: Edward A. Bangs, Outram Bangs, C. F. Batchelder, A. C. Bent, Frank Bolles, William Brewster, William S. Bryant, Arthur P. Chadbourne, Montague Chamberlain, Charles B. Cory, Walter Faxon, N. A. Francis, Joseph L. Goodale, J. Amory Jeffries, William A. Jeffries, Frederic H. Kennard, Charles R. Lamb, Edward C. Mason, Henry A. Purdie, Henry M. Spelman.

THE SECOND CONGRESS of the International Ornithological Committee will be held at Buda-Pest in the spring of 1889. The President of the Committee, Dr. Rudolf Blasius, and the Secretary, Dr. Gustav von Hayek, have issued a circular note to the members of the Committee, setting forth the objects of the Congress and suggesting subjects for consideration. In addition to the report on the work of the Committee during the last five years, which will be submitted, it is proposed to bring forward the following questions for action: (1) The establishing of an international classification and nomenclature of birds for general adoption. This involves an agreement in respect to a system of classification, and the principles on which nomenclature shall be based. The scheme further includes the preparation of a new 'Hand-list of Genera and Species', that of the late Dr. G. R. Gray, completed in 1871, having become in a measure obsolete through the lapse of time and the progress of the science. It is proposed that the labor of its preparation be divided among numerous specialists, who will act as collaborators, the publication of the work to be superintended by the Committee. (2) To secure additional observers, in districts not as yet properly covered to aid in determining the principal lines of migration. (3) Recommendations and suggestions respecting legislation for the better protection of birds, particularly during the spring migration and the breeding season. (4) The determination of the status of the different groups of birds as regards their economic relations to agriculture and forestry. Besides the above the Committee recommend the adoption of the metric system of measurement in all works relating to ornithology; and also to use scientific names of birds in all scientific publications, in addition to the vernacular names, in case the latter are used.

The members of the Committee are requested to send in their answers to these proposals, and also to submit others for discussion, to either the President or Secretary not later than the end of February of this year. The course of the official representatives of the Committee in bringing forward these important questions for consideration at the next International Congress is certainly commendable, and likely to yield important results.

THE question of the adoption of the metric system in ornithology, mentioned above, was discussed by the Council of the A. O. U. at the meeting recently held in Washington, and the matter of its adoption in 'The Auk,' was referred to the Committee on Publications. It was here again discussed at length, but the motion to adopt was finally lost, much to the surprise of some of the members advocating it. It would seem, however, that a reform of such evident desirability, must sooner or later meet with general favor.

In the April number of 'The Auk' (Vol. V, p. 224) reference was made to various ornithological expeditions sent by Messrs. Godman, Brewster, and Sennett to different parts of Mexico. The collectors there mentioned have nearly all returned, and have had in the main excellent success. Mr. M. A. Frazer has just reached the United States after an absence of two years, spent, in the interest of Mr. Brewster, in Lower California and Northwestern Mexico, his explorations extending eastward as far as Chihuahua. The amount of ornithological material gathered by him during this period, it may be safely said, greatly exceeds that collected by any other single pair of hands during an equal length of time, and must afford the basis for a very important contribution to our knowledge of these portions of Mexico.

Further southward Mr. and Mrs. H. H. Smith have been collecting for Mr. Godman, in the States of Guerrero and Tobasco, part of their time only, however, being devoted to birds. But several thousand skins of birds are included in their rich harvest, many of them collected in the higher mountainous parts of the State of Guerrero. Mr. Godman has also had Mr. William Lloyd at work in the State of Chihuahua, and Mr. W. B. Richardson in the States of San Luis Potosi and Tamaulipas.

Messrs. Priour and Grover have also sent large collections to Mr. Sennett from the States of Tamaulipas and Nuevo Leon. Thus large portions of the Republic of Mexico have been visited during the past year by able and well-trained collectors, the results of whose labors must yield many novelties and much detailed information respecting Mexican ornithology.

Mr. Cory, it may be added, is still continuing his work in the West Indies. One of his collectors, Mr. E. B. Gallinger, however, unfortunately fell a victim to yellow fever before fairly entering upon his explorations. Mr. and Mrs. Smith, we understand, are to sail soon for the island of St. Vincent, being under an engagement to thoroughly explore first the fauna of this island, and later that of other islands, for Mr. Godman.

THE AUK:

A QUARTERLY JOURNAL OF ORNITHOLOGY.

VOL. VI.

APRIL, 1889.

No. 2.

DESCRIPTIONS OF SUPPOSED NEW BIRDS FROM WESTERN NORTH AMERICA AND MEXICO.

BY WILLIAM BREWSTER.

Psittac ula cyanopyga pallida, new subspecies.

SUBSPEC. CHAR.—Similar to *P. cyanopyga*, but with the bill rather stouter, the green of the upper parts duller and more ashy, that of the lower parts lighter and yellower.

♂ *ad.* (No. 14,389, collection of W. Brewster, Alamos, Sonora, Mexico, March 8, 1888; M. Abbott Frazar). Apple-green, darker and somewhat olivaceous on the crown, occiput, nape, back, and wings, tinged faintly with ashy on the sides of the neck, nape, and back; rump and outer webs of greater wing-coverts deep, shining, turquoise blue; axillaries and under wing-coverts a lighter shade of the same; outer webs of all except the outer four primaries and both webs of most of the secondaries tinged with verditer blue. Basal half of both mandibles horn color, terminal half yellowish white; wing, 3.50; tail, 1.57; bill: length from nostril, .53; greatest depth of upper mandible, .27; greatest depth of lower mandible, .33 inch.

♀ *ad.* (No. 14,390, collection of William Brewster, Alamos, Sonora, Mexico, March 8, 1888; M. Abbott Frazar). Wholly lacking the blue on wings, axillaries and rump; otherwise precisely like the male. Wing, 3.50; tail, 1.65; bill: length of culmen from nostril, .55; greatest depth of upper mandible, .25; greatest depth of lower mandible, .32 inch.

Twelve specimens of this form, all taken the same day from the same flock, differ very constantly, in respect to the characters above pointed out, from five examples of *P. cyanopyga* in the National Museum. Of the latter, three are from Mazatlan, one from Jalisco, and one from Manzanilla Bay.

Empidonax pulverius,* new species.—SIERRA MADRE FLYCATCHER.

SPEC. CHAR.—Similar to *E. cineritius* Brews., but much larger, the bill slenderer, the coloring of the under parts darker and more uniform.

♂ *ad.* (No. 14,387, collection of W. Brewster, Pinos Altos, Chihuahua, Mexico, June 23, 1888; M. Abbott Frazar). Above faded, somewhat grayish hair-brown, the pileum and nape tinged with olive, the forehead decidedly grayish, the feathers of the crown with dark brown centres; wings and tail dark hair-brown (almost clove-brown on the wings), the outer webs of the outer tail feathers brownish white to the shaft excepting at the tip, the secondaries and inner primaries narrowly, the greater and middle wing-coverts broadly, tipped (and near the apices margined also) with brownish white; bend of wing, under wing-coverts, crissum, flanks, and a narrow space on the centre of the abdomen pale yellow; remainder of under parts nearly uniform dull brownish gray, with a tinge of yellowish olive, most pronounced on the jugulum and middle of the breast, apparently wanting on the middle of the throat (the darkest colored area beneath) which with the nearly concolored sides of head and neck is scarcely lighter than the back. The eye is encircled by a well-marked white or whitish ring, interrupted by a dusky space on the upper eyelid. Lower mandible wholly straw-yellow. Wing, 2.93; tail, 2.60; tarsus, .62; length of culmen: from base, .53; from feathers, .44; from nostril, .36; width of bill at nostril, .20 inch.

♀ *ad.* (No. 14,388, collection of W. Brewster, Pinos Altos, Chihuahua, Mexico, June 6, 1888; M. Abbott Frazar). Similar to the male, but the entire upper parts tinged slightly with olive; the under parts lighter, with the entire abdomen and flanks pale brownish yellow, the throat with some whitish, the ring around the eye continuous and broader. Wing, 2.80; tail, 2.47; tarsus, .65; length of culmen: from base, .55; from feathers, .40; from nostril, .30; width of bill at nostril, .19 inch.

Habitat. Sierra Madre Mountains of Chihuahua (Pinos Altos), Mexico.

Although this Flycatcher has a bill nearly as narrow, proportionately, as average specimens of the *E. obscurus* group, and a general coloring quite as dark as *E. hammondi*, the dark extreme of that group, its wholly yellow under mandible and general, albeit very faint, yellowish tinge beneath attest its closer affinity with the yellow-billed *Empidonaces* of the *flaviventris-difficilis* type, with which it is connected through the intermediate form *cineritius*. It is impossible, however, to regard it as a subspecies of *difficilis*, for I have perfectly typical specimens of both *pul-*

* *Pulverius* = dust-colored.

verius and *difficilis* taken in late June at Pinos Altos where both unquestionably breed in close proximity, if not in the same thickets. The specific distinctness of *pulverius* from *cineritius* is less certain but probably not open to much doubt. My series of *pulverius* includes seven adults — five males and two females — all collected at Pinos Altos in June. Of these, the male above described represents the dark* or gray extreme, the female the opposite light or yellowish extreme. The variations in size are trifling. The wings of the other five birds measure respectively (♂) 2.98; (♂) 2.94; (♂) 3.04; (♂) 2.95; (♀) 2.75 inches.

***Empidonax griseus*, new species.—GRAY FLYCATCHER.**

SUBSP. CHAR.—Nearest *E. obscurus*, but larger and much grayer, the bill longer, the basal half of the lower mandible flesh colored in strong contrast to the blackish terminal half.

♂ *ad.* (No. 16,889, collection of W. Brewster, La Paz, Lower California, Feb. 5, 1887; M. Abbott Frazar). Above, with sides of head, neck, jugulum, breast, and body, smoke-gray, darkest and somewhat brownish on the crown, palest and decidedly ashy on neck, sides of jugulum, and breast; lores and forehead mixed with whitish; a narrow, nearly pure white ring encircling the eye; wings and tail hair-brown, the upper wing-coverts and all the quills, except the seven outer primaries, broadly tipped and edged with ashy white, which also forms a conspicuous border on the outer webs of the outer pair of tail feathers, not extending quite in to their shafts, however; under wing and tail coverts, crissum, and middle of abdomen, breast, and throat clear, but slightly ashy, white interrupted over a narrow space on the upper part of the breast by a band of smoke-gray, rather lighter than that of the sides of the breast which it connects, Wing, 2.77; tail, 2.45; tarsus, .72; length of culmen: from base, .62; from feathers, .45; from nostril, .40; breadth of bill at nostril, .21; breadth midway between nostril and tip, .12 inch.

♀ *ad.* (No. 16,900, collection of W. Brewster, La Paz, Lower California, Feb. 11, 1887; M. Abbott Frazar). Colored like the male, but smaller. Wing, 2.60; tail, 2.19; tarsus, .70; length of culmen: from base, .60; from feathers, .44; from nostril, .36; breadth of bill at nostril, .18; breadth midway between nostril and tip, .13 inch.

Habitat. Lower California (La Paz, Triunfo, San José del Cabo), Arizona (?), and southern Sonora, Mexico (Alamos).

* This specimen is in rather worn breeding plumage, whereas the female, although a breeding bird, is in nearly perfect plumage, a fact which doubtless has much to do with the difference between them.

My series of this form is large, comprising no less than sixty-five specimens from Lower California, and thirteen from Alamos in western Mexico. Among these there is surprisingly little individual variation in respect to the characters above pointed out, although the general coloring varies considerably with season. Autumnal birds have the upper parts faintly olivaceous, the under parts suffused with pale yellow, but the deepest colored specimens do not at all closely resemble the much darker and browner *E. obscurus*. The peculiar coloring of the under mandible is not subject to seasonal variation but, on the other hand, it is not uniform, some specimens having only the extreme tip dark, while in others the yellowish is confined to the basal fourth of the mandible. Only one bird in the entire series has the lower mandible uni-colored (light brown) from base to tip. On the whole the generally large size and especially long, slender bill are probably the best characters of *E. griseus*.

Turning now to *E. obscurus*, I find—among some fifty specimens from various parts of the western United States—much variation in coloring and excessive variation in the size and shape of the bill. Examples from southern Arizona and New Mexico are the lightest and grayest, and have the longest and narrowest bills. In some the bill is colored as in *E. griseus*; indeed several approach the latter very closely and are probably referable to it. Nevertheless *E. griseus* seems to be quite as distinct from *E. obscurus* as is the latter from *E. hammondi*. Indeed the material before me furnishes a series, apparently unbroken and very nicely graduated, connecting the largest, grayest specimen of *griseus* on the one hand, with the smallest, most olivaceous examples of *hammondi* on the other, the middle links of the chain being the specimens referable to *obscurus*. In almost any other group—save perhaps the Juncos—such a series would be conclusive proof of specific identity; but among *Empidonaces* forms shown by differences of habits, color of eggs, etc., to be perfectly distinct, are so often difficult of separation in the dried skin that ornithologists have learned to regard extremely slight peculiarities of form or color as good specific characters. Hence it is probably wisest to let the birds just mentioned stand, at least for the present, as full species.

In this connection a question of synonymy occurs, *viz.*, the possible necessity of using the name *obscurus* for the bird which I have

christened *griseus*. *Tyrannula obscura* of Swainson was based on a Flycatcher from Mexico, which is described (Philos. Mag. 1827, p. 367) as "Above olive gray, beneath yellowish white; wings short, brown, with two whitish bands; tail brown, even, the outer feather with a pale yellow margin. Length, $5\frac{1}{4}$; bill, nearly $\frac{1}{10}$; wings, $2\frac{1}{4}$; tail, 2.50; tarsi, $\frac{1}{10}$." With this description Baird—not without evident hesitation and the provisional proposal of another name—identified* a bird which most subsequent writers have followed him in calling *Empidonax obscurus*. It is evident, however, that Swainson's diagnosis applies more nearly to *E. griseus*, which is grayer above, yellower beneath (in autumn), and longer billed than the *E. obscurus* of Baird. The bill of *griseus*, however, does not, in the most extreme examples before me, reach anything like .70 inch in length, while the wing is longer than 2.50 and invariably much longer than the tail, exceeding it by fully one quarter of an inch in the majority of specimens. The under parts, also, are never plain, the breast and sides being distinctly grayish at all seasons. These discrepancies have seemed to me of sufficient importance to warrant the assumption that the name *obscurus* cannot be safely taken for the Flycatcher which I have called *griseus*. Obviously it can serve no longer for Baird's bird which must stand hereafter as *E. wrightii*.†

Melospiza lincolni striata, new subspecies.—FORBUSH'S SPARROW.

SUBSP. CHAR.—Similar to *M. lincolni*, but with the superciliary stripe and entire upper parts more strongly olivaceous, and the dark streaks, especially on the pileum, back, and upper tail-coverts, coarser, blacker, and more numerous.

♂ (No. 14,391, collection of W. Brewster, Comox, British Columbia, Sept. 8, 1888; E. H. Forbush). Above dull, slightly brownish olive; wings and tail faded clove-brown; all the upper coverts and most of the quill and tail feathers, as well as the feathers of the crown, bordered outwardly with chestnut, this broadest and richest on the inner secondaries, palest on the primaries and tail feathers, reduced to the narrowest possible margin on the feathers of the crown; entire upper parts streaked and spotted with black, most coarsely and thickly on the pileum, back, and upper tail-coverts where the light ground color is confined to the edges of the feathers and occupies much less than half of the total exposed surface of the plumage; middle and greater wing-coverts with buffy tips and black

* Pac. R. R. Rep. Vol. IX, p. 200.

† Baird, l. c.

(concealed) inner webs; middle pair of tail feathers with broad, black, shaft stripes extending from base to tip; superciliary stripe and sides of neck grayish olive, streaked (finely and sparsely on the superciliary stripe, more sharply on the neck) with blackish; lores dusky; sides of head below the eye rusty olive; a well defined malar stripe and a broad band across the chest tawny buff; sides, flanks, anal region, and under tail-coverts lighter and duller buff; remainder of under parts white; throat, breast, sides, flanks, and under tail-coverts streaked sharply with black; the malar stripe bordered above by a short, black line, below separated from the white of the throat by a broader as well as longer stripe of nearly confluent black spots; there is also a very distinct black line extending about half an inch back from the posterior corner of the eye; bill dark horn color, lighter at base of lower mandible; tarsi and feet light brown. Wing, 2.35; tail, 2.23 inches.

♀ (No. 14,392, collection of W. Brewster, Comox, British Columbia, Sept. 8, 1888; E. H. Forbush). Differing from the male above described only in having the chestnut edging on the feathers of the crown a trifle broader, the olivaceous of the upper parts, especially of the superciliary stripe, stronger, the white of the throat tinged with buffy. Wing, 2.30; tail, 2.23 inches.

Lincoln's Finch has been repeatedly cited as a good example of a 'hard and fast' species, which, although of wide distribution, is not subject to geographical variation. The specimens above described, with another male taken at the same place and season, show, however, that it has not been able to resist the potent modifying influences of the Northwest Coast Region. These influences have worked in quite the usual way, deepening the normal ground coloring and broadening and intensifying the normal markings. The differences are well marked and easily recognized. Indeed in a series of nearly one hundred specimens of *lincolni* from various parts of North America and Mexico I have found only three which approach the new form at all closely. Two of them may be referable to it, one coming from the Victoria Mts., Lower California (L. Belding, Feb. 20, 1883), the other from the Kowak River, Alaska (July 20, 1885). The third bird is labelled simply "Missouri River, 1843." If not a straggler from the Northwest Coast — by no means an impossibility — it represents a depth of coloring and coarseness of markings at once extreme and exceptional in *lincolni verus*.

Euphonia godmani,* new species.—GODMAN'S EUPHONIA.

SP. CHAR.—Most nearly like *E. minuta*, but larger, the bill much

*To Frederick DuCane Godman.

stouter, the yellow patch on the pileum broader and paler, all the secondaries and most of the primaries with the inner webs largely white; less white on the abdomen.

♂ *ad.* (No. 51,515, collection of U. S. National Museum, Mazatlan, Mexico, March, 1868; Ferdinand Bischoff). Forehead and fore part of crown pale yellow; rest of upper parts (including the exposed surfaces of the closed wings and tail), sides of head, including the lores and a narrow space above the eyes, chin, throat, jugulum, and neck all around, glossy violet, mixed with steel blue on the lower back, scapulars, and wing-coverts, and nearly or quite clear steel blue on the primaries, secondaries, and tail feathers; under wing-coverts, crissum, and under tail-coverts white, just perceptibly tinged with yellowish; tibiae whitish; rest of under parts rich chrome yellow, the feathers of the abdomen with much concealed white; inner webs of the outer and next to outer pair of tail feathers white from the base to within about .08 inch of the tip; third pair of feathers with a short white stripe confined to the margin of the inner web; all the other feathers wholly dark; first primary with a narrow white margin on the basal half of the inner web; second primary with this white margin occupying nearly half the inner web for two thirds its length; third primary with the white extending nearly to the shaft on the basal third of the feather, thence tapering to nothing on the margin just half an inch short of the tip; all the remaining primaries, as well as the secondaries (but not the tertials which are wholly dark colored), with the entire inner web white to the shaft for about two thirds of the distance from base to tip. Wing, 2.29; tail, 1.36; length of bill along culmen from base, .40; length of bill from feathers, .26; depth of bill at nostrils, .19; width of bill at rictus, .25 inch. Bill (in dried specimen) nearly white at base, shading towards the tip into dark horn color.

Habitat. Coast region of western Mexico (Mazatlan and Alamos).

In addition to the type, which belongs to the National Museum, I have before me another specimen, similar in every way (excepting that the bill is wholly dark horn color save for a small light space near the *tip* of the lower mandible), taken by Mr. Frazar at Alamos, Sonora, Mexico, March 16, 1888. This bird measures: wing, 2.21; tail, 1.44; length of culmen from concealed base, .35; length of culmen from feathers, .25; depth of bill at nostril, .19; width of bill at rictus, .25 inch.

Although Mr. Ridgway considers this new species most closely allied to *E. minima*, the only other member of the genus which similarly combines a white crissum with a yellow forehead, I cannot help thinking that it will prove to be nearer *E. affinis*. I have not been able, it is true, to compare the latter with *god-*

mani, but judging from descriptions the only important differences are that *affinis* has a yellow crissum, a narrow black, frontal band and no decided purplish except on the throat and head. ("*Atrocærulea, capite et gutture paulo purpurascensioribus; fronte anguste nigra.*")* In the size and shape of the bill the two appear to agree closely. The bill of *minima*, on the other hand, is very much slenderer than in *godmani*, and this difference seems to me of more importance than color, especially as the crissum of *godmani* is tinged slightly with yellow, a fact which indicates probable variations in this character.

Progne subis hesperia, † new subspecies.—WESTERN MARTIN.

SUBSP. CHAR.—Female differing from female *subis* in having the abdomen, anal region, crissum, and under tail-coverts pure white, nearly or quite immaculate, the throat, breast, flanks, forehead, fore part of crown and nuchal collar grayish white, the feathers of the back and rump conspicuously edged with grayish or pale brown, the bend of the wing and the under wing-coverts mottled profusely with whitish. Male indistinguishable from the male of *subis*.

♂ *ad.* (No. 15,394, collection of W. Brewster, Sierra de la Laguna, Lower California, June 4, 1887; M. Abbott Frazar). Entire plumage dark purplish blue; wings and tail black glossed with purple; the under surface of the shafts of all the wing and tail feathers broccoli-brown; feathers of crissum whitish at base. Wing, 5.56; tarsus, .57; tail, 2.07; culmen from nostril, .32 inch.

♀ *ad.* (No. 15,395, collection of W. Brewster, Sierra de la Laguna, Lower California, June 4, 1887; M. Abbott Frazar). Forehead, crown as far back as posterior corner of eyes, and nuchal collar brownish white; wings and tail slaty black with a faint purplish gloss; the under shafts of all the quills broccoli brown as in the male; remainder of upper parts dark purplish, all the feathers, including the scapulars, conspicuously tipped with brownish white; beneath ashy white, the chin, jugulum, and throat slightly tinged with smoke-gray, the breast with much concealed slate-gray, only the tips of the feathers being white, the flanks nearly pure slate; most of the feathers of the under parts with shaft lines of slaty, but these so fine that they are nowhere very conspicuous, while on the anal region and crissum they are nearly wanting; under wing-coverts and feathers of bend of wing beneath broadly tipped with white. Wing, 5.44; tarsus, .61; tail, 2.83; culmen from nostril, .34 inch.

Habitat. California (Ojai Valley) and Lower California (Sierra de la Laguna).

*Biol. Centr. Am. Vol. I (Aves), p. 258.

†*Hesperius* = *western*.

As will be seen from the above description the characters upon which this subspecies is based are presented solely by the female, all the males (thirty in number) in my Lower California series being, as far as I can discover, absolutely inseparable from eastern males of *P. subis*. The differences in the females of the two forms are sufficient, however, to afford excellent subspecific characters. Female *subis* is essentially unicolored above—although some specimens show traces of a brownish nuchal collar and are more or less grayish on the forehead. Beneath it has the throat, jugulum, sides of body, and most of the breast dull slaty or brownish, the feathers of the anal region and crissum with broad slaty centres, while the only approach to an immaculate white area is a small patch on the middle of the abdomen. The under wing-coverts are always, as far as I have seen, plain dark slate, although there is usually a little whitish on the bend of the wing. Described in equally general terms the female of *hesperia* may be said to have the forehead, fore part of crown, nuchal collar, and entire under parts ashy white, the darker markings and shades described in detail above being only apparent on a critical examination. My series of *hesperia* contains two spring males in a plumage about intermediate between that of the females of *subis* and *hesperia*; they are evidently young birds in the second year. Mr. Batchelder has two females from the Ojai Valley, California, which are practically identical with my Lower Californian specimens.

***Compsothlypis pulchra*, new species.—BEAUTIFUL PARULA.**

SPEC. CHAR.—Most nearly like *C. nigrilora*, but with the white wing-bands broader (sometimes fused into a single broad, white patch), the white spots on the tail nearly twice as extended, the outer web of the outer tail feather margined with white, the yellow beneath extending further back on the abdomen, the sides and most of the flanks, as well as the throat and breast, strongly tinged with orange brown.

♂ *ad.* (No. 14,379, collection of W. Brewster, Hacienda de San Rafael,* Chihuahua, Mexico, May 8, 1888; M. Abbott Frazar). Above of the same ashy blue or blue gray color as *C. americana* with a bright olive green dorsal patch precisely as in that species; wings and tail generally similar to those of *americana* but with even more white, this on the

* This Hacienda, according to Mr. Frazar, is on the direct road from Alamos (Sonora) to Jesus Maria (Chihuahua), just inside the western boundary of the Province of Chihuahua. It is situated just below the oak belt in a semi-tropical region.

greater wing-coverts extending back nearly to the tips of the overlapping middle coverts and forming an almost confluent wing-patch; white on the tail about twice as extensive as in *americana*, edging the outer web of the outer feather from the base nearly to the tip, occupying the inner web of this feather to the shaft for a space half an inch in length, and the inner web of the next feather for a space one quarter of an inch in length; sides of head as in *C. nigrilora*, the eyelids and lores equally black, "this color extending as a narrow, frontal line to meet its fellow across base of culmen, and also reaching back to invade the auriculars on which it shades through dusky to the general bluish"; under wing and tail coverts, crissum, and extreme posterior part of abdomen, and flanks, white, remainder of under parts rich chrome yellow, tinged with brownish orange on the throat, jugulum, breast, sides, and fore part of the flanks; throat and jugulum bordered on each side by a white line, broadest at its posterior extremity, narrowing to nothing on the sides of the throat. Wing, 2.30; tail, 1.75; culmen from nostril, .29 inch.

♀ *ad.* (No. 14,380, collection of W. Brewster, Hacienda de San Rafael, Chihuahua, Mexico, May 14, 1888; M. Abbott Frazar). Similar to the male, but smaller; the general coloring paler; the lores slaty, not black, the throat scarcely tinged with orange, the wing-bands narrower and not merged. Wing, 2.10; tail, 1.61; culmen from nostril, .29 inch.

This beautiful Warbler, of which Mr. Frazar has sent me no less than thirty-two specimens, all taken at the same place and season as the types above described, is evidently most nearly related to *C. nigrilora*, with which it agrees perfectly in respect to the black lores and eyelids and the slaty auriculars. In at least two respects, however, — the extent of the white spots on the tail and the decided brownish orange tinge of the throat, breast, and sides—it presents a curious approach to *americana*, but the white on the tail is even more extended than in *americana*, while the orange beneath is considerably paler. Its only point of marked resemblance to its nearest geographical allies, *insularis* and *graysoni*, is the extension of the yellow of the under parts over most of the abdomen. There is some variation in this respect, however, as well as in the amount of white on the wings. In fact only a few specimens have the wing-bars actually fused as in the type of the male. The white line bordering the sides of the throat and jugulum is evidently inconstant also, for it is found in only three or four of my specimens.

***Dendroica nigrifrons*, new species.—BLACK-FRONTED WARBLER.**

SPEC. CHAR.—Male similar to *D. auduboni* but with the forehead and sides of the crown and head nearly uniform black, the interscapulars so

coarsely spotted that the black of their centres exceeds in extent the bluish ashy on their edges and tips, the black of the breast patch wholly unmixed with lighter color. Female with the general coloring, especially on the head, darker than in female *auduboni*; the dark markings of the breast and back coarser and more numerous; the entire pileum, including the yellow crown patch, spotted finely but thickly with slaty black.

♂ *ad.* (No. 14,381, collection of W. Brewster, Pinos Altos, Chihuahua, Mexico, June 5, 1888; M. Abbott Frazar). Forehead, sides of crown, sides of head generally, and fore back black, the feathers of the forehead and superciliary line from the nostrils to the occiput, as well as the interscapulars, edged with bluish ashy, so narrow and faint on the forehead and superciliary line as to be discernible only on the closest inspection; a portion of both eyelids white; hind back, nape, and sides of neck dull bluish ash, everywhere spotted or streaked with black; rump pale lemon yellow; middle of crown, chin, throat, and a patch on each side of the breast gamboge yellow; a patch of black unmixed with any lighter color occupies the remainder of the breast, extending backward from its point of junction with the yellow of the throat .90 of an inch in the middle and 1.50 on the sides; middle of abdomen, crissum, under tail-coverts, and flanks ashy white, the flanks streaked with black; wings as in *auduboni*, tail similar to that of *auduboni* but with the white more restricted. Length,* 5.75; extent,* 9.62; wing, 3.12; tail, 2.34 inches.

♀ *ad.* (No. 14,382, collection W. Brewster, Pinos Altos, Chihuahua, Mexico, June 5, 1888; M. Abbott Frazar). Above dull ashy tinged with hair-brown on the pileum, nape, and back. Interscapulars with large, central black spots varying in shape from broad lanceolate to ovate; hind back similarly but less coarsely marked; nape immaculate; entire pileum, including a central yellow crown patch, sharply but rather finely streaked and spotted with dark slaty; wings and tail marked and colored as in female *auduboni*; rump chrome yellow; beneath ashy white, the throat (but not the chin or jugulum) and a small patch on either side of the breast pale canary yellow, the flank tinged with wood-brown; entire breast spotted coarsely with black, the spots occupying the centre of the feathers near their tips, and varying in shape from cordate to broad ovate. Length, 5.75; extent, 9.50; wing, 3.10; tail, 2.35 inches.

♂ *juv. first plumage* (No. 14,383, collection W. Brewster, Pinos Altos, Chihuahua, Mexico, July 13, 1888; M. Abbott Frazar). Above broccoli-brown variegated with grayish, the feathers everywhere with broad central stripes of dull black; sides of head plain hair-brown; tail as in adult male; exposed surface of folded wing uniform with back, the concealed (inner) webs of the quills clove-brown, the coverts dark slaty, the outer edges of the greater coverts, and both webs of the middle coverts tipped and edged with rusty white, forming two conspicuous but widely separated bars; beneath ashy white, tinged faintly with buffy, the entire plumage,

*Measurements of fresh specimen by Mr. Frazar.

including that of the throat, abdomen, and under tail-coverts thickly and coarsely streaked with dull black; under wing-coverts and lining of wings buffy white, without spots; eyelids buffy white; throat tinged with faint yellow but no yellow on crown, rump, or sides of breast.

Habitat. Sierra Madre Mountains (Pinos Altos) of Chihuahua, Mexico.

This Warbler is perhaps the most beautiful and interesting bird discovered by Mr. Frazar in Mexico. It is evidently closely allied to *D. auduboni*, so closely in fact that the two may prove to intergrade. No indications of such intergradation are afforded, however, by my large series of *auduboni* from western Mexico, all the specimens of which appear to be typical. Of *D. nigrifrons* Mr. Frazar took only five examples, including the three above described; the remaining two being an adult male (wing, 3.10; tail, 2.30 inches) and a young bird in first plumage, both shot at Pinos Altos, July 13, 1888. The former is closely similar to the type, but has the nape less spotted and the black of the head a trifle duller.

***Thryophilus sinaloa cinereus*, new subspecies.—ASHY WREN.**

SUBSP. CHAR.—Similar to *T. sinaloa*, but the bill stouter, the upper mandible dark instead of light horn color, the general coloring above deeper and browner, that of the underparts, especially the breast and sides, more ashy.

♂ *ad.* (No. 14,385, collection of W. Brewster, Alamos, Sonora, Mexico, March 28, 1888; M. Abbott Frazar). Above dark sepia, the rump, upper tail-coverts, tail, and outer edges of the wing quills decidedly rusty; tail feathers with about twelve narrow, transverse, black bands, less than one third the width of the light interspaces, the terminal three broken and ill-defined, all the others sharp and distinct; outer two primaries with plain drab edges; outer edges of all the other wing quills with blackish, transverse spots or short bars about half the width of the light interspaces; superciliary line and throat white; middle of abdomen ashy white; both throat and abdomen with fine, indistinct, dusky spots sparsely distributed; crissum and under tail-coverts white, barred heavily with black; breast and sides light hair-brown with a grayish tone, the middle of the breast lighter, yet decidedly grayish, the flanks still darker with a rusty tinge; sides of head mottled black and white, the black bordering both edges of each feather, the white forming a broad shaft stripe; lores dusky; bend of wing and under wing-coverts white mottled with dusky; upper mandible (in dried specimen) dark (slaty) horn color; lower mandible flesh color, slightly dusky at tip; legs and feet flesh color tinged with brown. Length, 5.75; extent, 8.00; wing, 2.45; tail, 2.14; length of culmen from nostril, .42; depth of bill at nostril, .17 inch.

♀ *ad.* (No. 14,386, collection of W. Brewster, Alamos, Sonora, Mexico, March 6, 1888; M. Abbott Frazar). Closely similar to the male but smaller. Length, 5.25*; extent, 7.25*; wing, 2.07; tail, 1.70; length of culmen from nostril, .42; depth of bill at nostril, .16 inch.

This form is so very nearly allied to *T. sinaloa* that I should not have ventured to separate it had I not had an opportunity to make a direct comparison of the twenty-four specimens† collected by Mr Frazar with seven examples of *sinaloa* (including Baird's type) in the National Museum. Of the latter four are labelled "Mazatlan," two "Plains of Colima," and one simply "Sinaloa." All seven have the upper mandible scarcely darker than the lower and of a very light horn color whereas in my birds, without a single exception, it is very dark slaty horn color in sharp contrast to the flesh colored under mandible. The coloring of the upper parts of my specimens is variable and in some examples not appreciably different from that of Baird's type although my lightest, reddest extremes are very much duller or darker above than the lighter birds in the National Museum series of *sinaloa*, while all my specimens, without exception, have the under parts, especially the sides and flanks, considerably duller and grayer. The distinct barring of the tail shown by both types of *cinereus* is a feature subject to excessive variation in my series at large and evidently quite worthless as a diagnostic character.

In general terms the differences which separate *Thryophilus sinaloa cinereus* from *T. sinaloa verus* may be said to be closely parallel to, and of about the same constancy and value as those which distinguish *Troglodytes ædon artecus* from *T. ædon verus*.

Grayson describes‡ the eggs of *T. sinaloa* as "usually five in number and marked with small specks of a brownish color." All of the sixteen eggs (representing four sets of four eggs each) taken by Mr. Frazar are plain bluish white without the slightest trace of spots or other marking.

***Polioptila nigriceps restricta*, new subspecies.**—BLACK-FRONTED GNAT-CATCHER.

SUBSP. CHAR.—Similar to *P. nigriceps* but with the black of the pileum

*These measurements taken by Mr. Frazar from the fresh specimen.

† Of these five were taken at Alamos, Sonora, in February and March; the remaining nineteen at Hacienda de San Rafael, Cuahuahua, in May, 1888.

‡ *Mém. Soc. Nat. Hist.* Vol. II, Part III, No II, p. 268.

restricted to the forehead and fore part of the crown, the hind crown and occiput concolor with the back, the black of the lores mixed with bluish ash.

♂ *ad.* (No. 14,384, collection of W. Brewster, Alamos, Sonora, Mexico, March 7, 1888; M. Abbott Frazar). Above light blue-gray; beneath white, nearly pure over the middle of the abdomen and throat, tinged elsewhere with bluish gray, especially on the flanks and sides which are only a few shades lighter than the back; forehead and crown to about .20 inch behind the eye lustrous black; lores mixed black and gray, the former predominating; entire lower eyelid and a small spot on the upper eyelid white; outer tail feather white, except basally for a little less than one third of the outer web and one half of the inner web; next feather with the white reaching nearly to the base on the outer web and on the inner web .85 inch back from the tip; the third feather with the white extending back about two thirds of the length of the shaft on the outer web, .43 inch on the inner web. The fourth feather is missing but in another specimen it, also, is narrowly white-tipped. The tail, with the exception of the white areas just described, is black. The wings are clove-brown with a broad outer margin of whitish on the inner secondaries. Wing, 1.87; tail, 2.11; culmen from nostril, .31; tarsus, .72 inch.

Habitat. Southern Sonora (Alamos), Mexico.

All of the seven black-capped Gnatcatchers collected by Mr. Frazar at Alamos agree closely with the specimen just described and differ from two Mazatlan specimens (one of them Baird's type) of *nigriceps* in the characters above mentioned. There is some variation in the amount of black on the pileum, but this seems to be due to differences of age only, four of the seven specimens being in full breeding plumage. None of them have the black extending much further back than in the type. All have the lores more or less mixed with gray, and in two specimens (both, however, immature) the gray predominates over the black. The type of *nigriceps*, as Baird has said (Rev. Am. Birds, p. 69), has the entire under parts, including the flanks, white, but it is in very worn plumage, while my birds are in fresh feathering, a fact which may account for this seeming difference. Three female Gnatcatchers taken at Alamos with the males just mentioned are probably of the same form, although they differ from female *cærulea* only in having the tarsi rather longer and stouter and the lores lighter colored. One of them has the lores, as well as a distinct superciliary stripe, nearly pure white and hence agrees closely with *P. bilineata*.

ON THE SUMMER BIRDS OF BERKSHIRE COUNTY,
MASSACHUSETTS.

BY WALTER FAXON.

[Concluded from Vol. VI, p. 46.]

LIST OF BIRDS OBSERVED ON AND NEAR GRAYLOCK MOUNTAIN. JUNE
28—JULY 16, 1888.

1. *Actitis macularia*. SPOTTED SANDPIPER.—Several seen on Hopper Brook and Green River, Williamstown.
2. *Bonasa umbellus*. RUFFED GROUSE.—Common in woods nearly to the summit of Graylock.*
3. *Buteo borealis*. RED-TAILED HAWK.—Rather common.
4. *Coccyzus erythrophthalmus*. BLACK-BILLED CUCKOO.—A few seen in the Notch and one on the Graylock carriage road, 2100 feet above the sea-level.
5. *Dryobates villosus*. HAIRY WOODPECKER.—Rather common on the Saddle-Back range, from an altitude of about 2500 feet to the summit of Graylock, 3505 feet.
6. *Dryobates pubescens*. DOWNY WOODPECKER.—Rare. Only one or two were seen. These were at the head of the Hopper, about 2000 feet above the sea-level.
7. *Sphyrapicus varius*. YELLOW-BELLIED WOODPECKER.—Several specimens seen at different times on the Graylock carriage road, between two and three miles from the summit. Approximate altitude, 2800 feet.†
8. *Colaptes auratus*. GOLDEN-WINGED WOODPECKER.—Common about the base of the mountains and in the Notch. Also found on Graylock at an elevation of about 2800 feet, but at this altitude *Dryobates villosus* is the commonest Woodpecker.
9. *Antrostomus vociferus*. WHIP-POOR-WILL.—A few were heard in the Notch, altitude 1200 feet.
10. *Chordeiles virginianus*. NIGHTHAWK.—A few were seen in the Notch.
11. *Chaetura pelagica*. CHIMNEY SWIFT.—Common. Frequently seen flying about the summit of Graylock.
12. *Trochilus colubris*. RUBY-THROATED HUMMINGBIRD.—Observed several times in the Notch.

* *Colinus virginianus* undoubtedly occurs at the base of the Saddle-Back range. I heard from trustworthy sources that a Quail's nest was found in the Notch, North Adams, during the season of 1888.

† Although *Ceophanus pileatus* was not seen by me, the peculiar mortise-like holes which Mr. Brewster assures me are solely the work of this bird, were often noted. Mr. Brewster met with the birds themselves in the Hopper in 1883.

13. *Tyrannus tyrannus*. KINGBIRD.—Common in the open, cultivated country.

14. *Myiarchus crinitus*. CRESTED FLYCATCHER.—Rare. A pair were repeatedly seen near the Graylock carriage road, 2100 feet above sea-level, and a few at lower levels.

15. *Sayornis phœbe*. PEWEE.—Rather common in the cultivated lands.

16. *Contopus borealis*. OLIVE-SIDED FLYCATCHER.—Not rare on the mountain sides. Most often found where the timber has been partly cut off.

17. *Contopus virens*. WOOD PEWEE.—Common. A few were found on Graylock at an altitude of 2800 feet.

18. *Empidonax pusillus traillii*. TRAILL'S FLYCATCHER.—Several observed in the willows along the shores of the Hoosac River in North Adams. Shot a male, evidently nesting in the neighborhood, in a thicket of willows on Notch Brook, July 12; altitude about 1200 feet.

19. *Empidonax minimus*. LEAST FLYCATCHER.—Not very common. Found chiefly in the farming lands.

20. *Cyanocitta cristata*. BLUE JAY.—Common up to summit of Graylock, where they often came to feed on the refuse thrown from the door of the mountain house.

21. *Corvus americanus*. AMERICAN CROW.—Very common.*

22. *Dolichonyx oryzivorus*. BOBOLINK.—Common. Breeds in the Notch as high as 1400 feet above the sea-level.

23. *Molothrus ater*. COWBIRD.—A few were seen near the village of North Adams.

24. *Icterus galbula*. BALTIMORE ORIOLE.—Not rare in the settled portions of the country.

25. *Carpodacus purpureus*. PURPLE FINCH.—Common. Found on the Saddle-Back Mountains from the base to the summit of Graylock Peak.

26. *Loxia curvirostra minor*. AMERICAN RED CROSSBILL.—On the 14th of July, in the 'saddle' or depression between Graylock and Bald Mt., a small flock of Red Crossbills flew by but a short distance above my head. I saw them again near the same spot on the following day. Approximate altitude, 3000 feet.

27. *Spinus tristis*. AMERICAN GOLDFINCH.—Common where the land has been cleared of the forest.

28. *Spinus pinus*. PINE SISKIN.—On the morning of July 16 a few Siskins were seen near the old Adams path on Graylock, about 3000 feet above the sea.

29. *Poocætes gramineus*. BAY-WINGED SPARROW.—Common in the cultivated land in the valleys.

* *Corvus corax* was recorded from Williamstown in 1877 by Professor Sanborn Tenney (Amer. Nat., XI, 243, 1877; cf. Brewster, Auk, I, 10, foot-note, 1884). Tradition points to a cliff on the eastern side of Ragged Mountain in Adams as an old breeding place of the Raven. This cliff is still known in the neighborhood as the 'Raven Rocks.'

30. *Ammodramus sandwichensis savanna*. SAVANNA SPARROW.—Common at lower levels at the base of the Saddle-Back range of mountains, and observed in the Notch as high as the Graylock toll-gate, 1560 feet.

31. *Zonotrichia albicollis*. WHITE-THROATED SPARROW.—In ascending Graylock by the turnpike, this bird was not met with until within two miles of the summit (altitude about 2800 feet). From this point to the summit it is common. Its notes are preëminent in the bird music of the top of Graylock, where it is known and cherished by the keepers of the summit-house as the 'Mountain Lark.' On the eastern slope of Graylock, in the Notch, especially in the cleared land on the south of the 'Bellows-Pipe' or height-of-land, the Whitethroat descends to a much lower level than on the western side of the range.

32. *Spizella socialis*. CHIPPING SPARROW.—Common wherever the land is tilled.

33. *Spizella pusilla*. FIELD SPARROW.—Common in the pastures of the valleys and mountain sides.

34. *Junco hyemalis*. SNOWBIRD.—Common up to summit of Graylock. Observed, June 28, on the 'Winter Road' from North Adams to the Notch, only 370 feet above the village of North Adams. Here the birds were apparently on their breeding-ground. They are more abundant, however, at higher levels. They are called 'Snowbirds' here, as in eastern Massachusetts.

35. *Melospiza fasciata*. SONG SPARROW.—Common wherever the land has been cleared. I found it in Wilbur's Clearing, or the 'Mountain Pasture,' on the carriage road to Graylock (2200 feet), and on the southern side of Graylock, where the forest has been felled, at a considerably greater altitude. Not found on the summit.

36. *Passer domesticus*. HOUSE SPARROW.—Only found in populous villages like North Adams and Williamstown.

37. *Pipilo erythrophthalmus*. TOWHEE.—Not uncommon in favorable places, *e. g.*, the shrubby pastures on the 'Winter Road' in the neighborhood of the North Adams Reservoir and the cleared 'sprout-land' on the southeastern side of Graylock. Here it is found in the favorite haunts of the Mourning Warbler, and extends up to a high level, in fact as far as the forest has been cut off. Mr. Brewster found but one pair of Towhees during his visit to this region in 1883.* It is probable that they are increasing with the disappearance of the forest.

38. *Habia ludoviciana*. ROSE-BREASTED GROSBEAK.—Rather common. Noted on the mountains as high as 2500 feet.

39. *Passerina cyanea*. INDIGOBIRD.—Common in the more open country. Seen in the clearing on the summit of Graylock.

40. *Piranga erythromelas*. SCARLET TANAGER.—Rather common. Seen on Graylock at an altitude of over 3000 feet.

* Auk, I, 13, 1884.

41. *Petrochelidon lunifrons*. EAVE SWALLOW.—Common. According to Dr. Emmons, this bird first appeared in Williamstown in 1825.*
42. *Chelidon erythrogaster*. BARN SWALLOW.—Common. Often seen flying about the summit of Graylock.
43. *Tachycineta bicolor*. WHITE-BELLIED SWALLOW.—A few were seen in the village of North Adams, the only ones observed by me in Berkshire County.
44. *Ampelis cedrorum*. CEDARBIRD.—Common in the cultivated lands.
45. *Vireo olivaceus*. RED-EYED VIREO.—Abundant wherever there are deciduous woods.
46. *Vireo gilvus*. WARBLING VIREO.—Not uncommon in the villages, as in Williamstown and North Adams. Seldom seen elsewhere, and never except near dwellings.
47. *Vireo solitarius*. BLUE-HEADED VIREO.—Not uncommon in heavy woods on the sides of the mountains.
48. *Mniotilta varia*. BLACK-AND-WHITE WARBLER.—Not uncommon at lower levels. Not noted above about 2000 feet.
49. *Helminthophila ruficapilla*. NASHVILLE WARBLER.—Not rare. A good many were found in the pastures in the Notch and in the 'Mountain Pasture' (2200 feet). A few were seen along the Graylock turnpike up to within about a mile of the summit.
50. *Helminthophila peregrina*. TENNESSEE WARBLER.—On the morning of the 15th of July, near the point of divergence of the Williamstown and Adams paths on the southwestern side of Graylock Peak (altitude, about 3000 feet) I was surprised to hear the characteristic song of the Tennessee Warbler. I soon found the bird in a thick growth of black spruce, balsam fir, and mountain ash. Impeded by the dense undergrowth of hobble-bushes and by fallen logs, and losing the clew of song (for the bird became silent soon after discovery), I was unable to follow the bird and secure it. The next morning I again discovered it on the same path, half way between the former place and the summit of the mountain, but failed in my attempt to shoot it. My identification of the bird in both instances was absolutely certain. The only record of this bird's summering in Massachusetts that I can find is that of a bird, nest, and eggs, said to have been secured near Springfield by Professor Horsford.† This record seems to have been generally discredited. It is not included by Mr. Bicknell in his list of the summer birds of the Catskills. Tennessee Warblers seem to show much diversity in their choice of a summer haunt. In 1887 Mr. Bradford Torrey and myself found two males in full song through the breeding season in some pasture land largely grown up to black spruce in Franconia, New Hampshire, at a high level (some distance above the Profile House Farm). In the latter part of May, 1888, my brother discovered it near the same place and also in an extensive larch swamp in the lower part of the same town, where Mr. Torrey

* Amer. Jour. Sci. and Arts, XXVI, 208, 1834.

† Baird, Brewer and Ridgway, Hist. N. A. Birds. Land Birds, I, 207, 1874.

found it again in the latter part of the following month. Mr. William Brewster * detected it in a white spruce and larch swamp in Anticosti, July 11, 1881, and he informs me that at Lake Umbagog he has generally observed it during the breeding season in larch swamps, but sometimes on mountain sides—always among coniferous trees. Dr. C. H. Merriam† states that in the Adirondack region, where it breeds, it generally prefers hard-wood areas, and Mr. J. A. Allen‡ reports it as not uncommon toward the middle of July, near Denison, Iowa, "in low groves of bur- and other oaks."

51. *Compsothlypis americana*. BLUE YELLOW-BACKED WARBLER.—Very rare. I identified only one specimen, high up on the wall of the Hopper, about 2000 feet above the sea-level.

52. *Dendroica aestiva*. YELLOW WARBLER. Seen only near the village of North Adams. But it must be borne in mind that I spent very little time in the lower country of Northern Berkshire.

53. *Dendroica caerulescens*. BLACK-THROATED BLUE WARBLER.—Quite common on the mountains up to at least 3000 feet. Prefers woods with a good share of deciduous trees, maple, birch, beech, oak, etc. Among the innumerable specimens seen, but two were females.

54. *Dendroica coronata*. YELLOW-RUMPED WARBLER.—Not rare in the black spruces on Graylock from about 2800 feet to summit. One with a quick ear for the song might count on finding three or four specimens during a day spent on the mountain. I believe the only other record of this bird in Massachusetts during the breeding period is Winchendon, Worcester County (Brewster, *Auk*, V, 391, Oct., 1888).

55. *Dendroica maculosa*. BLACK-AND-YELLOW WARBLER.—Common. Noted from about 1000 to 2200 feet. Prefers somewhat open country with a second growth of spruce. Hence, although belonging to the Canadian fauna more strictly than the Canadian Warbler, it is not so common at high levels as the latter.

56. *Dendroica pensylvanica*. CHESTNUT-SIDED WARBLER.—Common in the mountain valleys, and extending well up on the sides of the mountains.

57. *Dendroica blackburniæ*. BLACKBURNIAN WARBLER.—Common on the Saddle-Back range from the Notch nearly to the summit of Graylock. On the Graylock carriage road *D. blackburniæ* and *D. virens* are the commonest of the Warblers.

58. *Dendroica virens*. BLACK-THROATED GREEN WARBLER.—Common. Distribution similar to that of *D. blackburniæ*.

59. *Seiurus aurocapillus*. GOLDEN-CROWNED THRUSH.—Common. Found nearly to the summit of Graylock.

60. *Geothlypis philadelphia*. MOURNING WARBLER.—Common. Noted at altitudes from 1000 to 3500 feet, one pair at least being established

* Proc. Boston Soc. Nat. Hist., XX, 370.

† Bull. Nuttall Orn. Club, VI, 227.

‡ Mem. Boston Soc. Nat. Hist., I, 494.

in the edge of the clearing on the summit of Graylock. Especially abundant where the forest has been cut on the south side of the 'Bellows-Pipe' in Adams. Wherever the land has been recently cleared, but not appropriated for pasturage or tillage, the Mourning Warbler is found, the most characteristic tenant of the dense 'sprout growth' that forms the vanguard of the succeeding forest. By widening the domain of this lovely bird the wood-cutter atones, in a measure, for the destruction he causes. The voice of the Mourning Warbler is full. The song that I most often heard resembles the syllables *thúr-ree, thúr-ree, thúr-ree* (sometimes the repetition was four times instead of three). A refrain consisting of three notes, with the accent upon the last, or of two notes with a strong accent on the first, the voice falling on the second, was sometimes appended. At other times the form of the song was quite different, consisting of but five notes, the penultimate note strongly accented, the last pitched on a lower key. The last two notes together are equal in time to one of the first three. Something in the mode of delivery of the latter song suggests the song of the Water-Thrush, as Mr. Maynard* has observed. As far as I could determine, the same bird always followed one score. The Mourning Warbler, like the Golden-crowned Thrush, or its nearer relative, the Maryland Yellow-throat, is much given to an ecstatic aerial song that defies description. On the first of July I discovered a nest of this bird. It contained four young birds. On the seventh the young had flown and the nest was secured. It was placed about ten inches from the ground in a clump of young beech saplings. The body of the nest is composed of strips of bark and dry leaves, with a lining of fine black roots and horse hair. Many dead leaves are fastened to the outside. But slightly attached to the saplings the nest rests upon a loose platform of dry spruce twigs. The inside diameter is about two inches. Of large size and slovenly construction the nest is not a very creditable specimen of Mniotiltine architecture.

61. *Geothlypis trichas*. MARYLAND YELLOW-THROAT.—Not rare, but not so abundant as *G. philadelphia*. Found to some extent in the same localities with the latter, but oftener at a lower level and in more cultivated country.

62. *Icteria virens*. YELLOW-BREASTED CHAT.—I was somewhat surprised to find a pair of Chats near the North Adams Reservoir (altitude, about 1080 feet), within half a mile of Hermit Thrushes, Black-and-yellow, Black-throated Blue, and Canadian Warblers, and Snowbirds, at the same elevation.

63. *Sylvania canadensis*. CANADIAN WARBLER.—Rather common on the Saddle-Back Mountains, breeding as high as the summit of Graylock. The lowest level at which it was observed was about 1000 feet above sea-level, near the cascade on Notch Brook, North Adams.

64. *Setophaga ruticilla*. AMERICAN REDSTART.—Not very common, and not found far up on the mountains. Much less abundant than in Eastern Massachusetts.

* Proc. Boston Soc. Nat. Hist., XIV, 362.

65. *Galeoscoptes carolinensis*. CATBIRD. — Common in the lower and more open country.

66. *Harporhynchus rufus*. BROWN THRASHER. — Not common. Not seen above an altitude of 1050 feet (North Adams).

67. *Troglodytes aëdon*. HOUSE WREN. — This bird was observed in its half-domesticated state near farmhouses in Williamstown, and a few were found remote from human habitations on the mountain sides where the forest had been cut off and where the dead stubs seemed to afford them a congenial home. In such places the Olive-sided Flycatcher also is pretty sure to be found. The Wrens are quite shy in such localities, seeming to retain the primitive habits of their race.

68. *Troglodytes hiemalis*. WINTER WREN. — Common in suitable localities on the Saddle-Back Mountains above 2000 feet. At this season they were very confiding, and seemed to take great pride in introducing me to their large and noisy families.

69. *Certhia familiaris americana*. AMERICAN BROWN CREEPER. — Common in the coniferous forest of the Saddle-Back Mountains.

70. *Sitta carolinensis*. WHITE-BELLIED NUTHATCH. — Not common. Killed one near the carriage road not far from the summit of Graylock, July 10, and saw a pair with young in the Hopper, July 9.

71. *Sitta canadensis*. RED-BELLIED NUTHATCH. — Common on the mountains. Observed from about 2100 feet to the summit of Graylock, in fact wherever there were old black spruces. Like its White-bellied cousin this bird at times repeats its nasal *hunk* for a protracted period and with rapidity, suggesting to my ears the call of a pygmy Flicker. This seems to be its song proper.

72. *Parus atricapillus*. CHICKADEE. — Rather common.

73. *Regulus satrapa*. GOLDEN-CROWNED KINGLET. — During my first ascent of Graylock on June 28, I discovered the Golden-crowned Kinglet in full summer song in the thick second growth of black spruce through which the carriage road passes before emerging into the 'Mountain Pasture.' Approximate altitude, 2200 feet. I afterward found the Kinglet to be a not uncommon bird at this place and higher up on the mountain in the primitive spruces. It has been recorded from the summits of the Catskills by Mr. T. M. Trippe* although Mr. Bicknell† failed to identify it in the same region at a later date.‡

*Amer. Nat., VI, 47, 1872.

†Trans. Linn. Soc. N. Y., I, 144, 1882.

‡Since this was written Mr. William Brewster has published an account of the breeding of the Golden-crowned Kinglet in Winchendon, Worcester Co., Mass. (Auk, V, 337, Oct., 1888). In Dr. Emmons's catalogue of Massachusetts birds (Hitchcock's 'Report on the Geology, Mineralogy, Botany, and Zoölogy of Massachusetts', 1833) this bird is marked as breeding in the State. As professor in Williams College, almost within the shadow of Graylock, Dr. Emmons had ample opportunity to know of the bird's presence on the mountain in the breeding season, although his authority in this case seems to have been universally discredited. In this second edition

74. *Turdus mustelinus*. WOOD THRUSH.—Common at lower levels and extending high up in the beech forest at the head of the Hopper. Also found sparingly at other points on the mountains. Noted on the Graylock carriage road near the three-mile board, altitude, 2400 feet (?).

75. *Turdus fuscescens*. WILSON'S THRUSH.—Common in the lower, cleared portions of the country, and observed at least as high as 2000 feet from the sea-level on the cleared portions of the mountain sides.

76. *Turdus aliciae bicknelli*. BICKNELL'S GRAY-CHEEKED THRUSH.—On the third of July I visited the summit of Graylock, for the first time under favorable conditions of weather. I had barely reached the top when the chant of Bicknell's Thrush was heard issuing from the thick growth of spruces, firs, and mountain ashes that skirt the clearing. The singer was perched upon one of the larger spruces, perhaps twenty feet from the ground. As I approached nearer he darted into the dense undergrowth of hobble-bushes and mountain maples. He proved to be so shy that it was not until my second subsequent visit to the mountain top (July 6) that I succeeded in shooting him. I therefore had ample opportunity to hear the song at short distance, for the bird was not chary of song when well concealed by intervening tree-trunks and foliage. The song is very much like that of Wilson's Thrush in quality of tone, but quite different in form. In neither regard does it bear any close resemblance to the song of Swainson's Thrush. It is introduced by two or three low clucks only to be heard at a short distance, which seem to the listener to be involuntary, mechanical sounds, like those that precede the song of the Whip-poor-will. The bird was shot while singing. The alarm or call-note of this species resembles the Veery's, although distinguishable. It is entirely different from the abrupt whistle of the Olive-back. All of the *Hylocichla* are as readily distinguished by their call-notes as by their proper songs. What I take to be the equivalent note of the Hermit Thrush is not the low *chuck* commonly heard while the bird is on its migration, but a peculiar sound which always suggests to me a Finch rather than a Thrush. The Bicknell's Thrush on Graylock remained in the same place to my knowledge for four days in early July, in constant song. I do not doubt, therefore, that its nest was near by. The condition of its testes, moreover, denoted a breeding bird. I failed to find a nest, however, nor did I see or hear another specimen although I visited the summit of Graylock on five subsequent days and carefully explored the other high points of the range.

of this catalogue, 1835, *Dendroica maculosa* and *Sitta canadensis*, both common in the Graylock region in summer, are also marked as breeding in Massachusetts, although not admitted in this role to recent lists until Mr. Allen's revised catalogue of 1886, on Mr. Brewster's authority. In the light of the recent testimony to the accuracy of Emmons's catalogue it is worthy of note that *Dendroica castanea* is also marked by him as "breeding, rare." Is it not possible that in Dr. Emmons's day, before the destruction of the great coniferous forest of Graylock had gone very far, this bird found a congenial breeding ground there, as it still does in the White Mountains of New Hampshire?

77. *Turdus ustulatus swainsonii*. SWAINSON'S THRUSH.—Not uncommon on the Saddle-Back range from about 2800 feet up to the summit of Graylock, 3505 feet. Met with sparingly as low as 2000 feet.

78. *Turdus aonalaschkæ pallasii*. EASTERN HERMIT THRUSH.—Common at elevations from 1000 or 1200 feet to 2900 feet.

79. *Merula migratoria*. AMERICAN ROBIN.—Common. Frequently seen on the mountains even to the summit of Graylock.

80. *Sialia sialis*. BLUEBIRD.—Rather common in the settled parts of the country.

ERRATA.

In the first part of this paper, Vol. VI, Jan. 1889, p. 42, line 14, for "oppositeness" read "appositeness"; line 30, omit "Yellow Warbler."

NOTES ON THE GENERAL HABITS, NESTS AND EGGS OF THE GENUS *PASSERELLA*.

BY CAPT. CHARLES E. BENDIRE.

THE GENUS *Passerella* was established by Swainson in 1837, and an excellent synopsis of it may be found in Mr. H. W. Henshaw's able article in the "Bulletin" of the Nuttall Ornithological Club, Vol. III, Jan., 1878, pages 3 to 7 inclusive.

According to the latest classification, that of the A. O. U. Code and Check-List, this genus is divided into four forms, one species proper and three races, as follows:

I. *Passerella iliaca* (Merr.), FOX SPARROW.

II. *Passerella iliaca unalaschcensis* (Gmel.), TOWNSEND'S SPARROW.

III. *Passerella iliaca megarhyncha* (Baird), THICK-BILLED SPARROW.

IV. *Passerella iliaca schistacea* (Baird), SLATE-COLORED SPARROW.

Regarding the breeding habits of *Passerella iliaca*, the handsome and well-known Fox Sparrow, familiar to all eastern ornithologists during its migrations, I am unfortunately unable to add anything that is new, from personal observations, and I cannot find any positive records in the bird literature accessible to

me that its nests and eggs have been taken by collectors within recent years. It does not appear to breed within the limits of the United States excepting in the Territory of Alaska. In addition to the authorities given by Baird, Brewer, and Ridgway in their 'History of North American Birds,' Vol. II, pages 50 to 53 inclusive, Mr. M. Harvey states in 'Forest and Stream,' Vol. VII, p. 99, that it breeds in Newfoundland, where it is called Hedge Sparrow, sometimes building its nest on the ground, and sometimes in bushes.

Mr. M. Abbott Frazar saw a pair at Hegaska, Labrador, in August, 1884, with their young, and Mr. Ernest E. T. Seton in his list of the birds of Manitoba in 'The Auk,' Vol. III, July, 1886, p. 324, writes that it breeds abundantly on Duck Mountain, Manitoba, but says nothing about taking their nests and eggs. Col. N. S. Goss tells me that he found these birds breeding on Bryon Isle, one of the Magdalen group in the Gulf of St. Lawrence in July, 1879 or 1880, but he was too late for eggs, they having then fully fledged young. It appears to be abundant during the breeding season throughout the greater portion of British North America, reaching well up to the Arctic Circle.

According to Mr. Robert McFarlane the Fox Sparrow nests on the ground as well as in low trees and bushes. Eggs of this species were taken at Moose Factory, Hudson Bay Territory, as early as June 2, 1860, and at Fort Resolution, Great Slave Lake, June 1, 1864. Most of the nests found by Mr. McFarlane were placed in low bushes, a foot or two from the ground; in one instance a nest of this species was found in a small tree eight feet up. The nests are constructed out of coarse dry grasses externally, lined with finer material of the same kind, as well as hair, moss, and feathers. A nest now before me, No. 4411, National Museum collection, collected by C. Drexler at Moose Factory, June 2, 1860, containing four fresh eggs, was placed in a pine bush, two feet up, and well concealed from view. On the outside this nest is five inches wide, by three inches deep, inside three inches wide by two inches in depth.

Sir John Richardson states that the eggs are five in number, of a pale, mountain-green tint, and marbled with irregular spots of brown. Judging from the records here, I am inclined to believe that four eggs usually completes a set, and that five is rather an exceptional number. In the eggs of this species before me, 36

in number, the ground color appears to be a pale bluish as well as grayish green in some cases, which undoubtedly has faded to a certain extent. This ground color is occasionally almost entirely hidden and overlain by a uniform brownish suffusion of different degrees of intensity ranging from Prout's to chocolate brown (see Ridgway's 'Nomenclature of Colors'), giving such eggs an evenly colored appearance resembling somewhat the darker colored phases or types found most commonly in the eggs of *Calcarius lapponicus*. About ten per cent show this pattern. Eggs in which the ground color is plainly and readily perceptible, are irregularly blotched and speckled to a greater or less extent with various shades of chocolate, umber, and vandyke brown, ecru drab, cinnamon rufous, and lilac gray. The difference in these eggs, as regards their markings, is very great, scarcely any two out of different nests being exactly alike. The largest egg in the number before me measures $1.00 \times .68$ inch, the smallest $.80 \times .61$ inch. The average is $.80 \times .63$ inch.

The distribution of the Fox Sparrow during its migrations is well enough known, as well as its general habits while with us as a winter visitor. I took a single specimen, a female, on Oct. 8, 1885, at Fort Custer, Montana, which I believe marks about the western limit of its range, during its migration. The specimen showed scarcely any trace of rufous, but was, on examination by Mr. Robert Ridgway, referred by him to this species. It is now in the collection of Mr. Manly Hardy, Brewer, Maine.

II. *Passerella iliaca unalaschcensis* (Gmel.), TOWNSEND'S SPARROW.

This bird was first described by Gmelin in 1788, under the name of *Emberiza unalaschcensis*, and seems to be confined in its habitat to the Pacific coast region, breeding, as far as is known at present, throughout British Columbia and Alaska Territory, and passing in its migrations well into southern California. Till recently it was supposed to be confined to the western slopes of the Cascade Range in Oregon and the Sierra Nevada in California, but I found it abundant at Fort Klamath, Oregon, on the eastern slope of the Cascades, during the fall of 1882, and spring of 1883, but did not find any evidence of its breeding there, and am inclined to think that it is only a migrant. A number of

specimens of this form, collected by me there, are now in the collection of the National Museum at Washington, D. C. I have taken it in the fall as early as Sept. 2, and as late as Nov. 15, 1882. None seem to winter there. In the spring of 1883 I took specimens as early as March 19, before the snow had all disappeared. They seem to travel in small companies, seldom more than six would be seen together, and it was rare to see them associate with other species. They were usually found in dark, damp thickets, laurel and evergreen especially, near streams, where they might be heard industriously scratching amongst the dead leaves in search of food. They are essentially terrestrial in their habits, and not particularly shy. Their usual call note is a faint *szip* several times repeated. They are not as good songsters as either *P. iliaca* or *P. iliaca megarhyncha*, and about on a par with *P. iliaca schistacea* in this respect. In their summer homes they may possibly appear to better advantage.

The credit of the discovery of the nest and eggs of this subspecies belongs, I believe, to Mr. Alphonse Forrer, a well-known California naturalist, who obtained three sets of their eggs for me at Seewash, Vancouver Island, British Columbia, on May 14 and 24, 1876, and June 7, 1877. A nest and three eggs of this species were also taken by Mr. E. W. Nelson, at St. Michaels, Alaska, June 5, 1880, and a nest and two eggs by Mr. W. J. Fisher, at Kadiak, Alaska, in the spring of 1883.

The nest taken by Mr. Nelson, now before me, No. 21,351, U. S. National Museum collection, is a handsome, compact, and solid structure, composed outwardly principally of moss, leaves, and plant fibres, well woven and incorporated together; it is lined with fine bits of dry grasses and the black hair-like fibres of a species of hypnum moss. Its exterior diameter is about five inches; depth, three inches; interior diameter, two and a quarter inches; depth, two inches. Their nest is usually placed in dense undergrowth and laurel thickets from six inches to one and a half feet from the ground, always well concealed and at no great distance from water. The number of eggs to a set is from three to four. Their ground color varies from a faint greenish gray to pale bluish green, a trifle more pronounced than in eggs of *P. iliaca*. This is due possibly, however, to their cleaner and better preparation and more recent collection. The eggs are blotched and speckled with irregularly shaped markings of vandyke and

claret brown, as well as several paler shades approaching lilac gray and vinaceous rufous. Of the twelve specimens of this form now before me, the largest measures $.98 \times .70$ inch, the smallest $.84 \times .62$ inch. Average $.89 \times .65$ inch.

***Passerella iliaca megarhyncha* (Baird), THICK-BILLED SPARROW.**

This peculiar race was first described by the late Prof. S. F. Baird in 1858 from specimens obtained by Mr. J. Xantus, near Fort Tejon in southern California. The habitat of this form is given as the mountains of California, including the eastern slope of the Sierra Nevada, to which at least southwestern Oregon must now be added, as I found it as a summer resident and breeding about Fort Klamath, Oregon. Adult and young birds, nests and eggs, from that locality, taken by me during the summers of 1882 and 1883, are to be found in the National Museum collection.

This bird makes its appearance about Fort Klamath, Oregon, during the first week in April, and remains mostly till late in October; an occasional straggler may be encountered as late as Nov. 10. I think it arrives somewhat later than Townsend's Sparrow in the spring. In its general habits it resembles the other forms of this genus, but it is a much better songster than either Townsend's or the Slate-colored Sparrow. Mr. H. W. Henshaw, in his paper on this genus referred to previously, says: "Probably resident wherever found," but I am quite satisfied that it is only a summer resident at Fort Klamath, and that it spends the winters southward. It does not seem to be common about there, and from its retiring habits, spending most of its time on the ground, in the thick undergrowth along the streams, it is difficult to observe it at its ease, and were it not for the noise these birds make, by their constant scratching amongst the fallen leaves in search of food, their presence would be still harder to ascertain.

Their nests are placed in various situations, *Kalmia* thickets, service-berry and willow bushes, as well as thick, scrubby evergreens, being preferred. They are always well hidden, and may be found from a few inches to six feet from the ground; none were found by me directly on the ground. Eggs may be looked for about June 12, and as late as July 15. The usual number laid is three or four, and but one brood, I think, is reared in a season.

A nest found July 13, 1882, near Fort Creek, Klamath Valley,

National Museum No. 18,725, containing four eggs almost hatched, was placed in a service-berry bush about three feet from the ground, on the border of a dense pine grove. This nest is composed externally of coarse plant fibres and dry willow bark, and is lined with fine grasses and a few horse-hairs. It is not as compactly built as nests of Townsend's or Slate-colored Sparrows. Its exterior is five inches wide by two and one half inches deep; inner diameter, three inches; depth, one and a quarter inches. It was evidently deeper originally, and has been much compressed and flattened in packing.

Another nest, taken July 5, 1883, was likewise found in a service-berry bush, growing on the banks of Wood River and partly overhanging it. This nest was placed about eight inches from the ground. It also contained four eggs, with medium-sized embryos. The female allowed me almost to touch her, and did not appear to be very much distressed at her loss, hopping around on the ground and undergrowth in the vicinity, uttering an occasional *szip* till she was shot. This bird had also previously been found breeding by Mr. L. Belding of Stockton, Cala., on June 7 and 14, 1879, at Big Trees, Calaveras County, California, and several specimens of the eggs collected by him are now before me; and, as far as I know, the credit of the first discovery of the nest and eggs of the Thick-billed Sparrow belongs to this gentleman.

In the twenty specimens of the eggs of this species now before me the ground color varies from a pale grayish green to grayish blue. The markings on the majority of these eggs seem to be finer and more evenly and regularly distributed over the entire egg than in the other forms already mentioned, with a tendency to running longitudinally. The spots and blotches vary from walnut-brown and burnt umber to fawn color, lilac, and mouse-gray in different specimens. The largest egg of the series measures $.98 \times .68$, the smallest $.82 \times .61$ inch. The average is $.87 \times .65$ inch. Mr. Charles H. Townsend found this Sparrow quite common about Mt. Shasta, California, during summer in 1883 and 1884, where it frequented the chaparral tracts and bushes scattered through the pine country, and where it bred, as indicated by the number of immature birds met with. I have never met with these birds north of Fort Klamath, and this point marks probably their northern breeding limit.

***Passerella iliaca schistacea* (Baird). SLATE-COLORED
SPARROW.**

This form was discovered by Lieut. F. T. Bryant, U. S. A., on the headwaters of the Platte River, Colorado, in July, 1856, and first described by the late Prof. S. F. Baird in 1858. Its range extends from the eastern slopes of the Rocky Mountains, across the great Basin to the western spurs of the Sierra Nevada in California and the eastern slopes of the Cascade range in Oregon; during its migrations, at least, I obtained it in the latter range in the vicinity of Fort Klamath, but only as a straggler. Mr. F. Stephens collected a specimen in February, 1880, in the vicinity of Tucson, Arizona, which marks the most southern point of its range as far as known at present. I have found it nesting as far north as the Palouze River in Whitman County, Washington Territory, in Lat. 47° , Long. 41° west of Washington, where I took a nest containing three eggs of this form and an egg of *Molothrus ater*, the Cowbird, on June 18, 1879. This locality marks the most westerly point where the latter species has been found as yet, I believe. My most westerly record where I found the Slate-colored Sparrow breeding, is on the headwaters of the Des Chutes or Fall River in Crook County, Oregon, June 13, 1882. While this bird certainly covers an extensive range during the breeding season, it seems to be extremely irregularly distributed. I have found it fairly abundant in some sections and entirely absent in others, although apparently equally suitable to it. Mr. R. Ridgway found it very plentiful in Parley's Park in the Wahsatch Mountains, Utah, and was the first naturalist to discover its nest and eggs. According to my own observations it is not so much a forest-loving bird as the two preceding forms, and seems rather to prefer the willows and rose thickets along the streams in the more open country, but is generally most abundant close to the foot-hills of the mountains. I have had excellent opportunities to observe it during four seasons while stationed at Camp Harney, Grant County, Oregon, where I found it a common summer resident and took a number of its nests and eggs. The Post (now abandoned) was located in the mouth of a cañon on the southern slope of one of the spurs of the Blue Mountains. A small mountain stream, appropriately named

Rattlesnake Creek from the numbers of these amiable reptiles found in its vicinity, flowed along the eastside of the Post, and sank a couple of miles below on the plain, forming the Harney Valley. The banks of this creek were fringed on both sides by dense willow and wild rose thickets, amongst which larger trees of various species were occasionally interspersed. These thickets furnished acceptable homes for the Slate-colored Sparrow, as well as for numerous other species, and quite a number of them bred right about the houses, in fact they were much more abundant for some reason in the immediate vicinity of the Garrison than at any other locality in that region. Possibly a more abundant food supply was found about there, or greater security from rapacious birds and mammals, owing to the proximity of the Post, may have had something to do with this fact. Here I found them quite tame and unsuspicious, much more so than the two preceding forms, and I have often seen them hopping around amongst the fowls and feeding with them. They usually arrived in that vicinity about the last week in March or the first week in April, and were amongst the earliest summer visitors to make their appearance. The greater part of the day was spent by them on the ground, scratching amongst the manure heaps or fallen leaves, searching for larvæ, small worms, insects, grain, and seeds of different kinds. Like the other forms they are quite terrestrial in their habits. They remained till late in October, and an occasional specimen was met with in the more sheltered portions of Harney Valley, near Malheur Lake, well into November. Operations for housekeeping were usually commenced in the latter half of May and throughout the beginning of June. I have, however, found one nest containing three fresh eggs as early as April 17, 1877. Some pairs at least, if not all, rear two broods in a season. While the female is covering her eggs, the male may frequently be heard giving vent to his nuptial song, in the early morning and just before sundown. His lay, however, is rather weak and of small compass, very much resembling that of *Melospiza fuscata montana*. He delivers it while perched on some small twig, overlooking the thicket in which the nest is placed and generally close to it. Their usual call note is a repeated *tzip, tzip*.

The nests of this form are bulky, but exceedingly well constructed affairs. The material composing the outer body is used at least in a very damp, if not in a positively wet state. It is

thoroughly welded together in this condition, forming when dry a compact, solid structure which will retain its shape perfectly. They are rather deep for the small size of the bird, and cup-shaped. The finer finishing touches are attended to by the female, which fits the material used as the inner lining of the nest carefully in its place. As a rule two or three days are consumed in the construction of a nest, but I have positive evidence, in one instance at least, that a pair of these birds built an entirely new nest, and did it well too, between sunrise and sunset of the same day, and an egg was deposited in it that evening. A nest now before me, No. 17,662, National Museum collection, taken by me at Camp Harney, Oregon, May 20, 1878, is outwardly constructed of various coarse plant fibres, willow bark, and marsh grass, and lined with fine grass tops taken from a species of rye grass. The outside of the nest is four and a half inches across by four inches deep; the inner diameter is two and a half inches, the depth two inches. About one third of the nests examined by me (some fifty in number), were lined inside with more or less horse-hair, and a couple, in addition, with feathers.

The Slate-colored Sparrow, according to my observations, prefers to nest in willow thickets, next in dense wild rose bushes, and occasionally in a bunch of tall rye grass, but always close to water. The nests are generally placed some little distance from the ground, rarely at a greater height than three feet, and are invariably well hidden. But a single instance came under my observation where the nest was placed directly on the ground; in this case it was hidden by an overhanging bunch of some species of swamp grass.

The usual number of eggs laid by these birds is four, although three are not infrequently found. I found but two nests in fifty containing five eggs, the latter were evidently very uncommonly large sets. Incubation, as nearly as I was able to determine, lasts from twelve to fourteen days; both sexes assist.

The ground color of the majority of the eggs of this form is a pale malachite-green, varying to olive buff and pale grayish green. The markings vary from burnt umber, chocolate and chestnut brown, to Indian and pale heliotrope purple, lilac, and lavender gray. As a rule the spots and blotches are better defined in shape and more evenly distributed over the egg than in the other forms of this genus, in no case obscuring the ground color

completely. The largest egg of the series, comprising 115 specimens, measures $.96 \times .68$ inch, the smallest $.74 \times .60$ inch. This egg, however, is abnormally small, the remaining ones in the same set coming fully up to the average size, which is $.88 \times .63$ inch. The shape of the eggs of the genus *Passerella* is ovate, with very little variation in this respect. Comparing the eggs of this genus with those of *Zonotrichia* and *Melospiza*, to which they are most closely allied, it will be found on a critical comparison that, aside from their uniformly larger size as a whole, there is also more difference in the coloration and markings than would appear to the superficial observer; in a word, the general pattern varies to a considerable extent, and while occasionally sets of eggs of these different genera may resemble each other rather closely, the greater number show very distinct characteristics of their own, which are easily enough noted by the oölogist, but not so readily described.

NOTES ON THE SUMMER BIRDS OF THE RESTIGOUCHE VALLEY, NEW BRUNSWICK.

BY JOHN BRITAIN AND PHILIP COX, JR.

THE RESTIGOUCHE RIVER flows easterly through the extreme northern part of New Brunswick, and before emptying into the Baie des Chaleurs, forms for sixty miles the boundary between New Brunswick and Quebec. The greater part of the valley is in about latitude 48° N. The country is undulating, in some places mountainous, and almost an unbroken forest. Winter is very severe; snow falls to a great depth and lingers until May; while chilly east winds, from the icy Gulf, make spring late and cold. Summer, however, is warm, except near the sea, where it is tempered by cool breezes; yet the nights, even in July, and far up the valley, are occasionally frosty and cold enough to form ice. About 110 miles of the valley, namely from the mouth of a tributary called the Wagan, to Campbellton, situated at the head of the estuary, were pretty thoroughly investigated, and although the

number of species observed is comparatively small, yet it is hoped that the record of the occurrence of some may prove of interest to the readers of 'The Auk.' The observations were made in July, 1888.

Merganser americanus. AMERICAN MERGANSER.—Quite common. Very destructive to young salmon.

Totanus solitarius. SOLITARY SANDPIPER.—Rare.

Actitis macularia. SPOTTED SANDPIPER.—Not uncommon.

Bonasa umbellus togata. CANADIAN RUFFED GROUSE.—Common. Many large broods of young about half-grown were seen.

Accipiter velox. SHARP-SHINNED HAWK.—Rare.

Accipiter cooperi. COOPER'S HAWK.—Common.

Buteo borealis. RED-TAILED HAWK.—Very rare.

Haliaeetus leucocephalus. WHITE-HEADED EAGLE.—Not uncommon. A nest was observed in a cliff about two hundred feet above the level of the river.

Pandion haliaetus. AMERICAN OSPREY.—Quite common.

Bubo virginianus. GREAT HORNED OWL.—Several young ones just on the wing were observed. They were very tame.

Ceryle alcyon. KINGFISHER.—Very common.

Dryobates villosus. HAIRY WOODPECKER.—Uncommon.

Dryobates pubescens. DOWNY WOODPECKER.—Very rare.

Picoides arcticus. BLACK-BACKED THREE-TOED WOODPECKER.—Rare.

Sphyrapicus varius. YELLOW-BELLIED SAPSUCKER.—Rare.

Colaptes auratus. FLICKER.—Common around fields.

Chordeiles virginianus. NIGHTHAWK.—Not common. Only seen in the vicinity of old burnt lands and settlements.

Chætura pelagica. CHIMNEY SWIFT.—Common, nesting in trees.

Tyrannus tyrannus. KINGBIRD.—Seen only in the neighborhood of houses near the mouth of the river. Very rare.

Contopus borealis. OLIVE-SIDED FLYCATCHER.—Common.

Contopus virens. WOOD PEWEE?—From its note thought to be this bird.

Empidonax minimus. LEAST FLYCATCHER.—Common.

Cyanocitta cristata. BLUE JAY.—Common.

Perisoreus canadensis. CANADA JAY.—Not common.

Corvus americanus. CROW.—Local.

Scolecophagus carolinus. RUSTY GRACKLE.—Rare and local.

Quiscalus quiscula. BRONZED GRACKLE.—Very rare.

Pinicola enucleator. PINE GROSBEEK.—This bird has been regarded as an exceedingly rare summer resident, some ornithologists even doubting that it nests within the limits of the Province. At nearly every camping ground, however, and at other points, we either saw or heard it, and a few miles below the mouth of the Kedgwick found a nest containing one egg and three young. The nest was placed in a crevice of a rock,

under a projecting shelf, and was partly concealed by weeds. The location was a cool one, for it was within a few feet of the water, on moist rock, and well protected from the sun's rays. The outside diameter of the nest was four inches, inside diameter two and three quarters, and depth three. The outer part was made of frayed strips of cedar bark, which became finer towards the interior, the latter being lined with fine vegetable fibres, runners of *Fragaria vesca*. No hair or fur, feathers or down, could be noticed, nor did the structure evince any great degree of skill. Enlarge the diameter, wind a few hairs around the inside, daub a little clay here and there, and it would be mistaken for a Robin's nest. We packed the egg away in cotton wool until it could be blown, but when examined next morning it had already hatched. One male bird was collected.

Carpodacus purpureus. PURPLE FINCH.—Common; often met in company with the preceding species in the localities mentioned.

Loxia curvirostra. AMERICAN CROSSBILL.—Not uncommon.

Spinus tristis. AMERICAN GOLDFINCH.—Occasionally met with near settlements.

Spinus pinus. PINE FINCH.—This species has heretofore been regarded as only a casual summer resident, but we found it quite common, especially about lumber camps and anglers' quarters where flocks of ten to fifteen were often seen. It is very tame.

Zonotrichia albicollis. WHITE-THROATED SPARROW.—Abundant.

Spizella socialis. CHIPPING SPARROW.—Only seen about Campbellton.

Junco hyemalis. JUNCO.—Very common.

Melospiza fasciata. SONG SPARROW.—Common.

Melospiza georgiana. SWAMP SPARROW.—Rare.

Chelidon erythrogaster. BARN SWALLOW.—Rare.

Tachycineta bicolor. TREE SWALLOW.—Rare; only in vicinity of settlements.

Clivicola riparia. BANK SWALLOW.—A small colony at the the mouth of the Kedgwick.

Ampelis cedrorum. AMERICAN WAXWING.—Common in places burned over a few years ago, where wild cherries and June-berries are to be found.

Vireo olivaceus. RED-EYED VIREO.—Common.

Vireo solitarius. SOLITARY VIREO.—Observed at but one point.

Helminthophila peregrina. TENNESSEE WARBLER.—Very rare.

Dendroica aestiva. YELLOW WARBLER.—Rare; seen principally in the vicinity of settlements.

Dendroica coronata. YELLOW-RUMPED WARBLER.—Rather common.

Dendroica maculosa. MAGNOLIA WARBLER.—Quite common.

Dendroica virens. BLACK-THROATED GREEN WARBLER.—Rare.

Seiurus aurocapillus. OVENBIRD.—Quite common.

Seiurus noveboracensis. WATER THRUSH.—Met with frequently.

Geothlypis philadelphia. MOURNING WARBLER.—Not uncommon in the upper part of the valley, but unobserved on the lower river.

- Geothlypis trichas*. MARYLAND YELLOW-THROAT.—Rare.
Sylvania canadensis. CANADIAN WARBLER.—Occurring occasionally.
Setophaga ruticilla. REDSTART.—Common.
Troglodytes hiemalis. WINTER WREN. Abundant locally.
Sitta canadensis. RED-BREASTED NUTHATCH.—Quite common, with young just on wing.
Parus atricapillus. BLACK-CAPPED CHICKADEE.—Not uncommon.
Parus hudsonicus. HUDSONIAN CHICKADEE.—Not uncommon.
Turdus aonalaschke pallasii. HERMIT THRUSH.—Observed everywhere.
Merula migratoria. ROBIN.—Very common.

NOTES ON WESTERN NORTH CAROLINA BIRDS.

BY W. A. JEFFRIES AND J. A. JEFFRIES.

On the 14th of May, 1888, with the prospect of two weeks to ourselves, we arrived at Sylva in Jackson County, North Carolina. Sylva is a small settlement on Scott's Creek, about three miles above its junction with the Tuckaseegee, a tributary of the Tennessee, at an elevation of 2000 feet. The Plott Balsams on the north and northeast, rise to 5000 and 6000 feet. King's Mountain, due south, is 3000 feet high.

The valleys in the neighborhood are all cleared and planted, usually to corn; grass is a rarity. Heavy timber covers the hillsides, dotted here and there with clearings, or patches of tall charred trunks affording good feeding grounds for *Colaptes auratus* and *Ceophlæus pileatus*. The life of a hillside farm is short, owing to the crude methods of the farmer. The surface of the soil is little more than scratched with a 'bull tongue' plough; a heavy plough suitable for such work is unknown. This results in bad washing of the soil, which soon becomes too much gullied for service.

On the 14th, immediately after our first futile attempt to make a meal off native fare, we hired horses and rode for twenty miles, going towards the northeast. On this ride we saw two Robins; three Robins only were seen by us below Franklin. We saw also several flocks of from six to twenty *Spinus tristis*; similar flocks

were seen for the next ten days. Soon after sundown the temperature fell rapidly, a sharp frost destroying the newly set apples, and killing the entire crop of beans, a staple of the country.

May 15 we drove down the creek, following the road running at the base of the hills to Dillsborough. On the shore of the creek in the village a pair of *Actitis macularia* had settled down for the summer. Three or four pairs of *Tyrannus tyrannus* were seen in orchards but were not common.

Thickets along the river bank were well tenanted by *Galeoscoptes carolinensis*. *Thryothorus ludovicianus* pre-empted many of the old willow stumps. *Sayornis phæbe* seemed to be breeding, yet we could not find a nest. *Empidonax acadicus*, *Cardinalis cardinalis*, and a few *Vireo noveboracensis* were also resident.

The second growth along the roadside was alive with *Vireo olivaceus*. We believe the total numbers of this species to equal that of any found by us; as far as Franklin it was the bird of the woods and second growth. *Spizella socialis*, then breeding, was abundant, working well into the woods, where we took several on foggy days, not being able to make certain of our bird without. Nearly all specimens were curiously stained below, presumably by the reddish soil. *Parus carolinensis* seemed to be the regular form of Chickadee, yet *P. atricapillus* was taken on May 15, a little below Sylva, on the brushy edge of a hillside covered by a second growth of oaks and scattered pines. A few *Poliophtila cærulea* and *Dendroica æstiva* were noted.

Passing through Dillsborough, our road ran for some distance along the Tuckaseegee. *Clivicola riparia* and *Chatura pelagica* were abundant. We failed, during our stay, to take a single specimen of the Rough-winged Swallow, which, if present, must have been rare. On the afternoon of the 15th it began raining and continued, with rare intervals of sunshine between heavy showers, until May 25. This interfered seriously with our collecting, driving the birds to shelter and silencing them.

The flight of warblers did not pass entirely until the 19th. Before that date we took *Dendroica maculosa*, *D. striata*, *D. blackburniæ*, *D. dominica*, *D. virens*, and *D. æstiva* (resident). *D. pennsylvanica* was seen but not taken.

Cuckoos, locally known as 'rain crows,' were abundant, *C. americanus* and *C. erythrophthalmus* being present in seem-

ingly equal numbers. *C. americanus* nested May 23. Their notes, in suitable places, could be heard hourly during our stay. *Myiarchus crinitus*, *Parus bicolor*, *Mniotilta varia*, *Contopus virens*, *Setophaga ruticilla*, *Spizella pusilla*, *Colinus virginianus*, *Passerina cyanea*, were among the common forms. *Cathartes aura*, *Corvus americanus*, and *Trochilus colubris* were not common. *Pipilo erythrophthalmus*, much disliked by the farmers, showed a decided preference for the borders of corn fields.

Our endeavors to find the Mockingbird were not successful. The bird was said to be common; several times we were told that a 'mocker' was in a certain place and sang all night. Several tramps after the 'mocker' proved the bird so called was either a Brown Thrasher or a Chat. Men who had lived in Sylva for years, moving from the coast, assured us that the 'gray mocker' had never been seen by them, although the 'mockingbird' was not rare.

Our negative evidence on the Wild Turkey would show that although formerly abundant it is now certainly rare. A man driving the year round for a living for over three years, going often as far as Highlands, said he had never seen one yet. The capture of a Wild Turkey is town talk for six months. At Franklin, though assured it was common, we concluded that a single brood only was the cause of all the stories we heard.

Our drives and walks brought to light the following birds: *Sialia sialis*, *Turdus fuscescens*, *Dryobates pubescens*, *Empidonax minimus*, *Sitta carolinensis*, *Icterus galbula*, and *Geothlypis trichas*.

May 24 we drove to Franklin; the day was hot but beautifully clear. *Turdus mustelinus*, nowhere rare, became abundant as we ascended; several nests were taken on the very edge of the road in plain sight of every passer by.

Leaving Franklin, May 25, on the way to Highlands, we met our first *Thryothorus bewickii*, and took a female *Junco hyemalis* just outside Franklin, at the roadside; it was alone. This specimen is decidedly brownish above, least so on back of occiput and head, most so across shoulders, which contrast distinctly with the grayish blue of neck. Franklin is much lower than Highlands, where we saw many *Junco hyemalis carolinensis*, and took a pair.

On making sufficient elevation to find Rose-breasted Grosbeaks and Robins, a decided increase both of numbers and species at any one spot was easily noticeable. This increase held good until a lower level beyond Highlands was reached.

Vireo solitarius alticola was easily found by its song in the open hard woods of the tableland near Highlands, where most of our birds were seen, though found also at an elevation approximately 500 feet lower as we left the plateau. They proved shy, flying from tree-top to tree-top well out of range. A single specimen reminds us strongly of *V. cassinii* as taken at Santa Barbara, California.

At the level of Highlands, exactly such species as Mr. Brewster has previously mentioned were taken, and none other. *Contopus borealis* was still on his hemlock-top, and rhododendron swamps through which the road was cut proved several times to be well filled with *Dendroica caerulescens*.

On leaving home our intentions were to go well into or over the 'Smokies,' but incessant rains and sickness finally drove us back to pure water. Few northern digestions could accomplish the feat of properly nourishing a man on native fare.

ADDITIONS TO THE CATALOGUE OF THE BIRDS OF KANSAS, WITH NOTES IN REGARD TO THEIR HABITS.

BY N. S. GOSS.

Æchmophorus occidentalis. WESTERN GREBE.—For this addition to our list, we are indebted to Prof. F. H. Snow, who reports that a young male was killed November 3, 1887, on the Kansas River, at Lawrence.* The birds are quite common on the northwestern part of the continent, breeding in reeds, ponds, and lakes east to northern Dakota and Manitoba, wintering along the Pacific coast south into Lower California, but this capture is the first mention that I can find of their appearance east of the Rocky Mountains south of their breeding grounds. I have noticed this large species at San Diego several times, and in the winter and early

*See Auk, Vol. V, p. 201.

spring of 1882, I had a good opportunity to observe them on the waters of Puget Sound. The birds ride the water lightly, and their silky plumage, slender build, long waving necks and graceful carriage can but attract the attention of the most indifferent of observers. Like all of the race they are expert swimmers and divers, and can quietly sink out of sight in the water without an apparent motion, but their ordinary manner of diving is to spring forward with a stroke of their feet, almost clearing the water and disappearing about three feet from the starting point. They are at home on the waves, and it is almost impossible to force the birds to take wing, but when in the air they fly with great rapidity, with neck and feet stretched out to their full extent, and in alighting, often do not attempt to slacken their speed, but strike the water with partially closed wings with a force that carries them on the surface from twenty to forty feet.

Their nests are usually built on broken down reeds or rushes growing in water from two to three feet deep, and made of decayed vegetation brought up from the bottom. Eggs, two to five, dull bluish white. A set of four eggs collected at Devil's Lake, Dakota, June 1, 1884, measures 2.20×1.47 , 2.26×1.47 , 2.30×1.49 , 2.32×1.50 inches. In form they vary from elliptical ovate to elongate ovate.

Two sets of eggs, one of four, the other of five, taken by Capt. Charles E. Bendire, May 28, 1883, on a marsh in Klamath County, Oregon, average 2.31×1.52 . He writes that they often lay seven eggs, and possibly more.

Oidemia perspicillata. SURF SCOTER.—A rare visitant; captured October 29, 1887, on the Kansas River, above the dam, at Lawrence, by Mr. A. L. Bennett of Emporia.*

This species of Sea Duck is abundant upon both coasts, and during the breeding season quite common upon the large northern inland waters; breeding from Sitka, Alaska, and the Gulf of St. Lawrence north to the Arctic coast. Their food consists largely of shell-fish (the mussel is a favorite, the shells of which appear to digest as easily as the animal within them) and fishes, and various forms of life also help to make up the bill of fare. Their flesh is coarse, and rather rank in flavor. The birds are at home as well in the surging surf as upon the smoother waters, resting and sleeping at night out upon the open waters. They rise from the surface in a running, laborious manner, but when fairly on the wing fly rapidly, and in stormy weather hug close to the water. While feeding they are very active, constantly and rapidly diving one after the other, a continual disappearing and popping up.

Picicorvus columbianus. CLARKE'S NUTCRACKER.—Mr. L. L. Jewell of Irving kindly sent me for examination a portion of the skin saved from a male bird shot Aug. 13, 1888, by Mr. Chas. Netz near the south line of Marshall County. Dr. Cooper met with a straggling pair at Fort Kearney, Nebraska, and Mr. G. S. Agersborg, a pair in southeastern Dakota, but like the Kansas visitor, accidental wanderers. It is seldom found

*See Auk, Vol. V, p. 202.

below an altitude of 4000 feet. This bird has the actions and habits of several species. Like the Jays, it is at times noisy and in flocks; and when upon the ground it hops about in the same manner. It clings like the Woodpeckers to the side of a tree while it hunts in old excavations, interstices of the bark, etc., for the various forms of life found therein; and its flight is similar to theirs. In clasping with its sharp claws the cones on the pines, and other coniferous trees, in order to pry with its bill for the seeds, it often hangs head downward, swaying back and forth, with the ease and movements of the Titmice. It is a very shy bird, and at or near its nesting place, silent.

In May, 1879, my brother found the birds breeding near Fort Garland, Colorado; it was too late in the season for their eggs, but in one nest he found two young birds; he says the old bird sat very close, only leaving when touched by his hand. The nest was built near the end of a horizontal limb of a pine tree, about ten feet from the ground, in an open, conspicuous situation. It was bulky, and coarsely constructed of twigs, sticks, strips of bark, rootlets, grass, moss, etc., and very deeply hollowed the bird, when on it, showing only part of her bill and tail, the latter pointing almost directly upward. At a distance the nest would have been taken for a squirrel's nest.

Capt. Charles E. Bendire writes me that in the month of April, 1876-1878, he found in the vicinity of Camp Harney, Oregon, quite a number of their nests, similar to the one described above, at a height of from twenty-five to seventy-five feet from the ground, a few with eggs, and gives the following dimensions of four eggs: $1.30 \times .92$, $1.26 \times .95$, $1.22 \times .95$, $1.20 \times .90$ inches. He says the usual number is three; the ground color, light grayish green, irregularly spotted and blotched with a deeper shade of gray, principally about the larger end; the shape is elongated oval, considerably pointed at the smaller end.

The following birds, taken in the State, were in the Goss Ornithological Collection at the time of the publication of my Revised Catalogue.

Phalacroptilus nuttalli nitidus. FROSTED POOR-WILL.—A single specimen, a female, shot by me at Neosho Falls, September 23, 1881, entered as *Phalacroptilus nuttalli*, has been since identified as this form.

Grus canadensis. LITTLE BROWN CRANE.—This bird was omitted by oversight from the catalogue. It is not uncommon during migration.

BIRD NOTES FROM LITTLE GULL ISLAND, SUFFOLK CO., N. Y.

BY BASIL HICKS DUTCHER.

LITTLE GULL ISLAND is a member of the chain of islands that extends across the eastern end of Long Island from Orient Point, the northeastern extremity of Long Island, to Watch Hill, Rhode

Island. It lies between Great Gull and Fisher's Islands, about one fourth of a mile E. N. E. of the former, and four miles W. S. W. of the latter. Between Little Gull and Fisher's Islands runs the 'Race,' the principal channel for vessels passing into and out of the Sound.

Little Gull is probably one hundred yards long by fifty broad, and is composed of coarse gravel overstrewn with large boulders. The light-house, with the dwelling house of the keepers, is built on a cylindrical turret of stone, about thirty-five yards in diameter and four high. The light is a fixed white light of the second order (burning three wicks), and is supplemented in foggy weather by a second class steam siren, giving blasts of five seconds duration, with intervals of forty seconds. The light is said to be visible seventeen miles, and the siren can be heard probably five or six.

Great Gull Island, situated W. S. W. of Little Gull, as described above, contains some fourteen or fifteen acres, and is composed of sand, with a shore line and broad outlying reef of rocks. The surface of the island is hilly, having an altitude of probably twenty-five feet at its highest point, and is covered by a growth of coarse grass, with here and there a small clump of bushes. In a hollow on the north side of the island is a small fresh-water swamp, dry and overgrown with cat-tails in the fall.

Great Gull Island was purchased by the Government to serve as a garden for the keepers of the Little Gull Light, but it was so overrun with mice that it was useless for that purpose. And now its sole use is as a breeding place for Terns and as a convenient and suitable spot for credulous people to search for the buried treasures of Captain Kidd.

I secured a specimen of the resident mouse, which proved to be a juvenile *Arvicola riparius*.

LIST OF BIRDS OBSERVED AT LITTLE GULL AND GREAT GULL ISLANDS, AUGUST 6-16, 1888.

1. *Stercorarius pomarinus*. POMARINE JAEGER, AND 2. *Stercorarius parasiticus*. PARASITIC JAEGER.—These species, taken together, were among the most common seen on the trip. From three to ten individuals could be seen any day at the fishing grounds, flying around among the Terns, chasing them about and compelling them to drop their fish. Every day on the 'slack' of the tides, when the bluefish bait seemed to be more abundant than at other times, the Terns would go over in crowds from

Great Gull to the 'Race' to fish, and though no Jaegers could be seen in the air before the arrival of the Terns, no sooner would the latter begin to fish than the Jaegers would gather around to pursue their regular business of robbery. As soon as a Jaeger would spy a Tern with a fish in its bill off he would start in pursuit, and dodge and dart as the Tern would, the Jaeger was always right in its track, pressing it closer and closer, until, despairing of ever eluding its pursuer, the poor Tern would drop the fish, which would be caught by the Jaeger before it reached the water. Although the Terns were swift and graceful flyers they were no match for their larger and more powerful enemies, who, when not engaged in pursuing the Terns, might sometimes be seen resting singly or in flocks of four or five on the surface of the water.

Chas. B. Field informed me that the Jaegers, or 'Hawks', arrived about the same time as the bluefish, and stayed as long as the bluefish were there, but that he never saw them in the winter.

When I arrived at Little Gull both Jaegers and Shearwaters were very tame indeed, not seeming to pay the least attention to us when we went out among them after bluefish; in fact, I was told that a bird of one of these species had, a short time before, been knocked down with an oar. But after we had shot three or four of them, they seemed to grow wilder. The Jaegers while on the wing keep the tail widely spread, in the shape of a fan, the long feathers, when the birds have them, being kept close together.

The Jaegers and Shearwaters could be easily distinguished from each other by their generally different appearance.

Two specimens of *S. pomarinus* and one of *S. parasiticus* were secured. Their stomachs contained fish-bones.

3. *Sterna hirundo*. COMMON TERN.—This species was by far the most abundant seen on the trip; the number of individuals I should estimate somewhere around five thousand. They were everywhere, at all times, and almost exclusively on the wing; it was a rare occurrence to see one at rest, and when one did alight it was almost always on the top of some rock, or on the surface of the water. Rest I suppose they did, but it must have been at night, since in the daytime, as I have said, they were always in motion. The condition of the rocks would also seem to indicate that they did roost at night, and that they used the rocks for that purpose, as the tops of the largest boulders were completely covered with the droppings of the birds.

The Terns were very jealous of any intruders on Great Gull, no matter who they were. The angry birds would congregate in one large flock directly above the object of their wrath, and attempt to annoy him by every means in their power. They would scream at him, circle around him, then poise in the air, set their wings, and come down like a shot, as if to transfix him with their bills, then when within a few feet would suddenly open their wings and swerve off, only to repeat the performance again and again. While this holds true in every other instance, in the case of man the Terns had learned by sad experience that he was not to be approached

without cause, and, unless we should lie still for quite a while in the grass, or else shoot a Crow or an unwary and over-confident Tern for a decoy, our chances of getting many were not large. This unfortunate habit of worrying over whatever came in their way or even over their own dead, however, was fatal to them, for if we could by any means bring down one bird we could get all the others we cared for, by simply using the first bird as a stool.

Quite a number of nests were found, although not so large a number as I judged there would be, after seeing the birds. I suppose, however, that some of the birds were the 'young of the year' that had learned to fly. The nests were all on the west end of the island, none being seen on the other end, and but few on the upland. Most of the nests were built of the dried grass of the island, some having a few dried reeds mixed in with the grass, while those built just at the edge of the bank, where the sand was bare of stones, were merely the slightest depressions in the sand; the eggs being laid in the sand, I presume, to save the bird the trouble of building a nest, as most of the grass nests were among the rocks on the shore just above high-water mark. The quantity of material used in different nests varied up to about a pint. The number of eggs in different sets was generally from one to four; most of the nests having two or three, several one or four, and one, five. The eggs in a set of four, accidentally stepped on, were all perfectly fresh, while some nests found, contained both young and eggs together. The young, however, seem to stay but a short time in the nest, as all those obtained were running around and trying to hide among the rocks. In a nest found containing a young bird and an egg, the bird must have been out but a very short time, as it was still damp. No eggs were collected on account of the difficulty in identifying them.

The Terns, as far as I know, were never on their nests in the daytime. and Chas. B. Field said that he had never seen one sitting, night or day. The eggs could not be identified by their coloring either, as they varied all the way from white up to a burnt umber, and from having very few spots to being almost completely covered with them. One abnormal egg had a ground color of light blue. But four or five nests were found on the upland, and the ants were at some of these. I should not be surprised if ants were the cause of the birds breeding almost exclusively on the shore, as there was good building material on the upland, just as handy as that on the shore, if not more so.

4. *Sterna dougalli*. ROSEATE TERN.—The 'Rosettes,' as the Roseates are called at Little Gull, are there considered quite rare; the keepers informing me that few are ever shot in the course of a season. During my stay I noticed but five; only three of which I am absolutely certain were Roseates, as I had them in my hands; the other two, however, I feel justified in calling Roseates by the extreme purity of their breasts and bellies, by the length of their tails, by the darkness of their bills, and by the fact that they seemed fully grown in every respect. The habits of the Roseates did not differ, so far as I could see, from those of the Common

Terns, nor was there any separate colony of nests that might have belonged to the Roseates; all the birds seemed to nest together without discrimination as to kind. I set snares on several nests in the hope of catching the birds alive and so identifying the eggs, but was unsuccessful in every case. The snares, which were nooses made of thread, would be found in the morning beaten down; whether this was done accidentally or purposely by the birds I do not know; but it seems to me most likely that the Terns unwittingly pushed down the nooses with their feet as they settled on their nests. In the eighty-six nests examined, and there were probably over double that number on the island, the eggs all differed in such an endless variety of colors, that the Roseates' eggs could not be distinguished from those of the Common Tern.

But two specimens were secured.

5. *Puffinus borealis*. CORY'S SHEARWATER.—But two individuals of this species were noted, one of which was secured. The Shearwaters seemed always to keep in company with the Jaegers, and to be engaged in the same occupation,—that of robbing the Terns. In fact their habits all through were much the same as those of the Jaegers, although I cannot say positively that I ever saw one alight on the surface of the water. Speaking of the Jaegers and Shearwaters collectively, Chas. B. Field said that they stayed while the bluefish were there, but as he had not before distinguished one species from the other, he could not be certain whether only one stayed, or whether both remained. It is probable, however, that both remain all summer. The stomach of the specimen secured contained only fish bones.

6. *Oceanodroma leucorhoa*, or

7. *Oceanites oceanicus*. LEACH'S or WILSON'S PETREL.—Petrels, one or both of these species, were very common in the 'Race,' or anywhere at some distance from land. But two individuals were noted near Little Gull, while farther to the north, out in the roadstead, they were very common, and rather wild. Most of those seen while I was crossing over to New London seemed to be feeding, and to be working westward at the same time.*

8. *Ereunetes pusillus*. SEMIPALMATED SANDPIPER.—An individual of this species was picked up dead at the foot of the tower on August 8, having killed itself against the Light during the night. Before I was ready to skin it the insects instituted a prior claim on the body, so the skin was not preserved. This individual was the only one seen on the trip.

9. *Actitis macularia*. SPOTTED SANDPIPER.—The 'Tip-ups' were very numerous, continually feeding around the shores of both islands, and at low tide flying along from rock to rock, stopping a moment on the top of each to pick up insects. I was informed that they bred on Great Gull, Chas. B. Field showing me a place where he found a nest in the earlier part of the season.

*Later.—Aug. 17.—Chas. B. Field secured and gave me a Petrel that proved to be the last-named of these species, thus warranting what has been said above to be true of Wilson's, if not of Leach's Petrel.

10. *Arenaria interpres*. TURNSTONE.—Flocks of these birds could be seen at almost any time flying around the islands, and alighting on the rocks to feed. They seemed to prefer the larger rocks to the shore, and especially those that were in the water. So common were the Turnstones on Great Gull that the Terns did not seem to pay the least attention to them. I presume the Terns had learned that the Turnstone, unlike almost every other visitor, did not go for the purpose of killing them or their young, or of robbing them of their eggs. Two specimens shot proved to be so fat as to render good skins impossible; in fact a few hours after they were killed the feathers of the breasts of both birds were matted with oil. The keepers at Little Gull consider these birds very poor eating, so never kill them for food.

11. *Circus hudsonius*. MARSH HAWK.—A single specimen was seen and secured on Great Gull, August 12. The bird was first flushed from the swamp, where he had probably been feeding. As we had no guns with us when he was first flushed, we left him undisturbed, but returned later in the day better prepared. As we approached the island a large flock of Terns were observed hovering over a small depression near the summit. We very cautiously approached the spot around which the Terns were flying, suspecting that they were worrying the Hawk. This conjecture proved true, but the bird was so engaged in feeding, or was so intimidated by the Terns, that he did not rise until we were within twenty feet of him; and then flew off very slowly, keeping within a few feet of the ground. Some cold lead, however, soon put an end to his career. In the stomach I found the remains of a mouse and of a Yellow Warbler. This Hawk is known at Little Gull as the 'Mouse Hawk.'

12. *Pandion haliaëtus carolinensis*. AMERICAN OSPREY.—Several individuals of this species were seen in Gardiner's Bay, while we were en route for Little Gull; and one or two were seen fishing around that island. It was the exception rather than the rule, however, to see them so far out; they seem to prefer to stay nearer the main land.

13. *Ceryle alcyon*. BELTED KINGFISHER.—Chas. B. Field informed me that he saw one around Little Gull early on the morning of August 12.

14. *Corvus americanus*. AMERICAN CROW.—Four unlucky Crows some time in the spring before the Terns arrived, decided to take up their residence on Great Gull Island. By what motives they were actuated I do not know. It might have been that they came in search of food, or they might have been seeking solitude. If the first conjecture be true they must have gotten plenty of that that they sought; for the island was well stocked with the eggs and young of the Terns. If the last conjecture be true they were sadly disappointed, for no sooner had the Terns arrived than they fell on the Crows and persecuted them relentlessly until we put an end to their misery. Leave the island they could not, for did one attempt to rise a horde of Terns was at him almost before he had risen above the grass, and screaming, diving, and dashing at the unfortunate bird, would soon drive him back to the earth again, and then, as if not content with that, would continue to worry him long after he had settled down.

The Crows were in a sorry plight indeed, for the Terns, not satisfied with worrying their victims at a distance, even went so far as to peck out the poor birds' feathers; and between the exuviae that the Terns had dropped upon them, and the light patches where the feathers had been picked out, the Crows presented a rather mottled appearance. From the upper mandible of one Crow a piece of the sheath and bone, half an inch long and an eighth deep, had been gouged out, undoubtedly by the lower mandible of a Tern. This incessant persecution had rendered the Crows so tame that we could always approach to within twenty-five feet of them before they would fly. And Chas. B. Field told me that on one occasion he caught one in his hand, the bird preferring rather to be caught by the man than to be chased by the Terns.

15. *Ammodramus maritimus*. SEASIDE SPARROW.—An individual of this species was found on the concrete, August 7, having struck the tower the night before.

16. *Melospiza fasciata*. SONG SPARROW.—This species was quite common on Great Gull, and could frequently be heard singing. It seemed to prefer the swamp and its immediate vicinity to the more elevated parts of the island. One specimen was shot from some bushes around the edge of the marsh.

17. *Chelidon erythrogaster*. BARN SWALLOW.—Almost every day while I was at Little Gull Island flocks of these birds could be seen on their southward migration. These birds and those of the succeeding species seemed, in their flight, to follow the line of the islands, from the mainland to Fisher's Island, from Fisher's to Little Gull, Little Gull to Great Gull, Great Gull to Plum, and so to Long Island.

18. *Tachycineta bicolor*. TREE SWALLOW.—All that has been said of the preceding species will apply also to this.

19. *Clivicola riparia*. BANK SWALLOW.—Although no birds of this species were seen, Chas. B. Field said that they had bred abundantly on Great Gull earlier in the season,—a statement that was well verified by the large number of holes in the sand banks that overlooked the shores of the island. Mr. Field also said that about as soon as the Swallows had dug out their homes, some folks, who should have been better employed, came over from Connecticut and amused themselves by digging out the holes that the Swallows had made, thus compelling the birds to excavate new ones.

20. *Mniotilta varia*. BLACK-AND-WHITE WARBLER.—A bird belonging to this species was picked up from the concrete August 9, having committed suicide against the tower the night before.

20. *Dendroica aestiva*. YELLOW WARBLER.—Standing on the concrete at the foot of the tower on foggy nights and looking upward, we could see around the lantern a broad halo of light, probably one hundred feet in diameter. Outside of this halo was total darkness. This phenomenon, I presume, was caused by the reflection and refraction of the light by the minute particles of water in the vicinity of the lantern; and the darkness beyond was due to the fact that very little, if any, of the small portion of

light that penetrated beyond the fifty-foot limit reached the eye. The migration, which had just begun when I arrived, could be splendidly observed by means of this patch of light. The birds could be seen flying to and fro in all directions, generally keeping within the ring, as if reluctant to leave the region of light and go into the darkness beyond. Although it would be an easy thing to distinguish the different families from each other in the strong light of the lantern, it would take a good deal of practice to tell the species apart. One species, however, was easily distinguishable as the birds flew back and forth,—the Yellow Warbler. It was, indeed, a pretty sight to see these birds flitting around, their yellow breasts and bellies illumined by the rays from the lantern. I identified but one other species in the halo, the Redstart. Chas. B. Field said, however, that he could sometimes in the migrations distinguish Robins and Catbirds. He also remarked that in the fall migration all the birds struck on the W. S. W. side of the lantern, instead of on the E. N. E., as it might be supposed they would. All the birds that were picked up from the concrete were also on the W. S. W. side of the tower, showing that they very probably struck on that side. In the morning after every cloudy night, various Warblers, that had either been weakened by striking and had not the strength to go on, or had been caught by daylight and stopped to feed, would be seen flying around the shores of the island. Three species were thus observed, Black-and-white Warblers, Yellow Warblers, and Redstarts, of which the second species was most common. In fact the Yellow Warblers were seen on both Great Gull and Little Gull Islands. But few birds of any kind struck during my stay, probably because, although a number of the nights were foggy, none were stormy.

22. *Setophaga ruticilla*. AMERICAN REDSTART.—As remarked in the preceding note, one individual was observed flying around the light. Another was shot while it was feeding around the shores of Little Gull on the morning of the 8th.

23. *Merula migratoria*. AMERICAN ROBIN.—While after Terns one day, on Great Gull, Chas. B. Field saw a Robin, and although I did not see the bird myself I place perfect faith in his identification. He also informed me that Robins sometimes struck the light.

BIRD NOTES FROM LONG ISLAND, NEW YORK.

BY WILLIAM DUTCHER.

1. *Oceanodroma leucorhoa*. LEACH'S PETREL.—Three Petrels are included in Giraud's Long Island list, as follows: Wilson's, Fork-tailed, and the Least, the two latter being now known as Leach's and the Stormy Petrel. Mr. Lawrence included these, and added the Tropical

Fulmar, now known as the Black-capped Petrel, a straggler of this species having been taken at Quogue, L. I., in 1850.* That the Stormy Petrel (*Procellaria pelagica*) was included on insufficient grounds is indicated by our present knowledge of its distribution. The general resemblance to each other of the three species of this family included by Mr. Giraud in his list is so great, and as they are not usually found near the shore, it is not strange that they have been confounded in the earlier records. Mr. Giraud considered Leach's Petrel rare, as he records it in the following words: "Is of rare occurrence on the shores of Long Island."† The only specimen of this species that I have been able to procure, thus far, is a male, which struck Fire Island Light on the night of May 4, 1888, between the hours of 10 P. M. and 2 A. M. The weather was thick, with a brisk southwest wind.

2. *Oceanites oceanicus*. WILSON'S PETREL.—Of this species Mr. Giraud says: "Are not uncommon off Sandy Hook, within sight of land, and occasionally stragglers are seen coasting along the shores of Long Island."‡ Petrels are not uncommon off the Long Island coast during the summer months, and that they are mostly of this species I am led to believe from the present evidence. Gunners and baymen on the south side tell me that they have seen Petrels off shore while bluefishing, but that they rarely see them near the surf line, or on the bays, except after very heavy blows. A letter written by Mr. W. L. Breese,§ who owns and resides on an extensive estate called Timber Point, near Islip, L. I., proves that they are sometimes found in Great South Bay. In a communication to Dr. A. K. Fisher, June 25, 1888, he says: "I saw a flock of about twenty-five Petrels in the bay, this week, the only ones I have ever seen down here. I do not know what they were doing here so late in the season and so far up the bay."|| July 20, 1888, Mr. N. T. Lawrence, B. H. Dutcher, and the writer sailed through Rockaway Inlet in a bluefish smack, for the purpose of ascertaining what Petrels, if any, were to be found off Rockaway Beach and Coney Island. We went out on the last of a strong ebb tide and with a very light breeze, that hardly filled our flapping sail. When about a mile off shore we saw a single Petrel, which passed us out of gunshot, flying parallel with the shore. In a short time this or another individual passed us going in an opposite direction. Until we were nearly two miles off shore we saw single individuals at short intervals, always just skimming the tops of the long ground-swells, apparently in search of food. When about two and one half miles off shore, we changed our course and sailed parallel with the beach; almost imperceptibly the Petrels became more numerous. We would see a pair flying in company, or a small flock of six or eight scattered in an irregular but

* Ann. Lyc. Nat. Hist., Vol. V, p. 220.

† Birds of Long Island, p. 372.

‡ Ibid., p. 371.

§ Deceased since this was written. See Auk, Vol. VI, p. 81.

|| About eight miles northeast from Fire Island Inlet and near the main land.

following manner. Sometimes one or two would rest for a moment on the water, floating buoyantly, like a tossing cork. Where the ebbing tide made slick, greasy looking streaks on the water, and also in eddies where drift and floatage gathered, these birds seemed most fond of congregating, evidently for the particles of food they there found. We remained on the ocean about three hours, when the gathering wind and clouds warned us to return to the more quiet waters of the bay. While the wind was light the Petrels were quite shy and would rarely come within gunshot, but as the breeze became stronger and the water rougher, they seemed to lose their fear of our boat and we could sail within gunshot without difficulty. Six specimens were secured, all proving to be of this species. Many more could have been shot, but unfortunately we were without a landing-net and so could not recover them. While returning to the beach we saw them in gradually lessening numbers, the last one being just inside the mouth of the inlet. While feeding, their movements were extremely graceful. On finding floating matter they would hover over it, dropping their feet to the water and apparently patting it, and, with partially extended wings, bend their necks so that their bills would point downwards at a right angle to the body. During the early part of August, Petrels were common at the entrance to Long Island Sound, as per report of Basil Hicks Dutcher;* the only one he secured was of this species. That they sometimes wander westward through the Sound is established by the record made by Robert B. Lawrence, of one taken near Sands Point, Queens Co., August 7, 1881.†

3. *Phalacrocorax carbo*. CORMORANT.—September 24, 1888, I received in the flesh a magnificent specimen of this species from Chas. B. Field, who had shot it two days previously near the Little Gull Island Light. He subsequently wrote to me in answer to inquiries, "There were two of them, both alike. We have a much smaller kind, all black. I often see the large kind, both alone and with the smaller black ones. I do not know that I have ever seen a flock without a few of the large ones (like specimen sent) with them. I have seen in one day, perhaps thirty of the large ones, but they are not so plenty as the small ones. Both kinds are very wild and hard to get at." With the aid of observations which Mr. Field has promised to make in the future, and the specimens he hopes to procure of both the Cormorants credited to Long Island, I trust soon to be able to define their status in that district.

4. *Anas boschas* + *obscura*. HYBRID.—March 17, 1888, Andrew Chichester, a professional South Bay gunner and bayman, sent to me from Amityville, Suffolk Co., the above-indicated very beautiful hybrid. His letter accompanying it I give in full: "I send you a Duck different from anything I ever saw in my experience as a gunner. It looks to me like a mongrel, half Mallard and half Black Duck. It was in a flock of five, I think. They came in wide, so I only shot at the one, and I did not see

*See *antea*, p. 128.

† Forest and Stream, Vol. XXVII, p. 428.

hat it was different from a common Black Duck until I picked it up, so I cannot tell whether the remainder of the flock were similar to it or not." Mr. F. M. Chapman has kindly prepared the following description of this hybrid for record. "In the male hybrid between *boschas* and *obscura* there is, on the whole, a fairly equal division of the characters of both parents; the crown, hind-neck, and nape are as in *boschas*; the sides of the head, the throat, and neck resemble more those of *obscura*, but there is a wash of green on the first named region, and the chin is blackish.

The lesser and median wing-coverts and tertials are similar to those of *boschas*, while the speculum is that of *obscura*, with the terminal border of white more as in *boschas*. The upper and lower tail-coverts resemble those of *boschas*, but the tail differs very slightly from that of *obscura*. Below the ground work is nearly as in *obscura*, but there is a suffusion of chestnut over the entire breast."

5. *Histrionicus histrionicus*. HARLEQUIN DUCK.—Since my previous records* of this species, one other specimen has come to my notice. Dr. Wm. M. Smith, Health Officer of the Port of New York, has in his possession a mounted specimen which was shot during the winter of 1887-88, in the vicinity of Swinburne Island, Lower Bay, New York Harbor, by one of the hospital employees stationed there. It was alone when secured.

6. *Crymophilus fulcarius*. RED PHALAROPE.—Capt. Scott, early in September, 1886, found on the beach at Montauk a specimen of this species, dead. The skin was sent to me for identification with the statement that, "The bird is rare here." No other records were obtained until October 22, 1888, when Mr. William L. Baker, one of the crew of the Ditch Plain Life Saving Station, near Montauk Point, sent to me, in the flesh, a male Northern Phalarope, and a female Red Phalarope, with the following very interesting letter: "October 22, Montauk, Long Island. You will find enclosed two birds which I killed while they were feeding in the surf abreast of this station. I wish to know what they are, as I have never seen any like them before. They came here about ten days ago. They are the most graceful little fellows on the water that I ever saw, and they seem to be experienced surfmen, for the surf seems to be their home altogether." Subsequently he wrote: "There were four of them, two large and two small ones. Both of the latter and one of the former were killed. The fourth one remained about an hour and then disappeared. There are men who have been at this station for the past twelve years; I have been here nine years, and we do not remember seeing any such birds on Montauk before." Mr. Giraud remarks of them: "This is another species with which our acquaintance is very limited. The specimen now before me was shot on the beach at 'Quogue,' and I have seen a few others that were procured in that vicinity."†

7. *Phalaropus lobatus*. NORTHERN PHALAROPE.—Since my last record of this species in May, 1884,‡ I have obtained a number of records and

* Auk, Vol. III, p. 434.

† Birds of Long Island, p. 245.

‡ Auk, Vol. III, p. 436.

also specimens, both in spring and fall, all from Montauk Point, the extreme southeastern end of Long Island. It would seem from this fact that these Phalaropes do not, in migrating, follow the outline of the coast, as most of the *Limicola* of Long Island do, but in coming northward in the spring leave the coast in the neighborhood of Delaware or lower New Jersey and by taking a northeasterly route reach Cape Cod. During the southward migration the reverse obtains. A few only of the great body of these migrants approach the land, even at Montauk, except in case of heavy and adverse winds. September 3, 1886, three individuals struck Montauk Point Light, one of which was sent to me by the keeper, Captain J. G. Scott. He informed me that there were about twenty of the same kind of birds about the light and that some of the same species were seen on the beach the next day. He stated they are not uncommon in August and September. May 5, 1888, two specimens were sent to me by Captain Scott. He reported about fifty around the light when these struck, and that there were "Lots of them hovering about the light from midnight to four A. M." Captain Scott thought these a new species, as he had not before seen them in their spring plumage, and consequently did not recognize them as the same species of 'web-footed snipe' that he had seen, not uncommonly, in the fall of the year. Both of the specimens sent to me were females in very high plumage. The ova in both were very small. May 29, 1888, three additional specimens were sent to me from Montauk, which struck the tower that night, during a fog, with an east wind. There were about twenty in the flock. The specimens were all males, but were not in such high plumage as the females that were migrating nearly a month in advance of them. That they were adult birds and would have bred was indicated by the testes, which were about fully developed. August 13, 1888, the return migration had commenced, as three out of a flock struck the same light at 3 A. M. and just in advance of a southeast storm which commenced shortly after.

The specimen taken October 22, 1888, by Mr. Baker, is the latest seasonal record that I have. How much longer this pair would have remained it is hard to conjecture, but it is fair to suppose that if the food supply continued satisfactory to them, only a marked and unfavorable change in the weather would have hurried them on their southward journey. The status of this Phalarope on Long Island may be briefly described as follows: In the spring, rather rare except when driven shoreward by storms. In the fall, not uncommon in the eastern and middle south shore, and rare at the western end of the Island. On the Sound side of the Island I have only one record,—of one which was caught alive by the keeper of Little Gull Island Light, some years since.*

Mr. Giraud says of them:† "With us, it is seldom observed. The last

* An additional Sound record may be found in Bull. Nutt. Orn. Club, Vol. V, p. 117 of one taken Sept. 29, 1879, at Flushing, Queens Co., by C. A. Willets, the record being made by Robert Lawrence.

† Birds of Long Island, pp. 248, 249.

individual that I met with, I came upon while engaged in shooting Terns on the inner beach, in the latter part of June. I observed it at a distance in company with a party of small Sandpipers, which I was scrutinizing through a glass that always accompanies me in my collecting tours. Appearing longer than its associates, and too small for the Yellow-shanks, or other familiar species of which we have spoken, I immediately set about ascertaining to what species it belonged—and as I advanced, was much pleased to find that an opportunity offered to secure another specimen of one of the rarest of our birds. It was very gentle, and seemed to have no disposition to take wing, although I had arrived quite near. It was standing in a shallow pool of water, and during my observations remained in a listless attitude, scarcely changing its position until alarmed by the explosion of the cap of the first barrel of my gun, which missed fire—when it sprung up, uttering a low whistling note; and while passing slowly from me, with the other barrel I secured it. On dissection it proved to be a male, and from its plumage I considered it the young of the year. In its stomach I found particles of shells and sand.” Mr. Giraud’s inference that the specimen in question was of the “young of the year” seems hardly correct in view of the fact that the date he gives is “the latter part of June.” It is probable that it was a more than usually dull plumaged adult male bird.

8. *Tryngites subruficollis*. BUFF-BREASTED SANDPIPER.—Mr. Giraud considered this species on Long Island, as “Not a very common bird, though its occurrence is by no means unusual. Almost every season a few are observed along the southern shores of Long Island, and during autumn we occasionally find it in our markets stripped of its feathers, and exposed for sale along with the Pectoral Sandpiper.”* My first specimen of this Sandpiper was not secured until August 28, of this year (1888), when one was presented to me by Mr. Frank M. Lawrence of Mastic, Suffolk Co. He subsequently wrote: “It was shot by a lad who sent it to me to identify, and as it was a strange bird to me I forwarded it to you. He shot it on the meadows on the north side of the bay. It was alone.” The only other specimen of this species that has come under my personal observation was one shot by Capt. W. N. Lane, in midsummer some twelve years since. It was presented to Mr. George Lawrence Nicholas and is now, I believe, in the Princeton College collection. Other late records for Long Island have been made by Mr. N. T. Lawrence† and Mr. DeL. Berier.‡

9. *Picoides arcticus*. ARCTIC THREE-TOED WOODPECKER. — While on a visit to Sag Harbor, Suffolk Co., partially for the purpose of ornithological research, I visited the taxidermic studio of Messrs. Lucas and Buck. While looking through their stock of skins and mounted birds I found a specimen of this species. Neither Mr. Lucas nor Mr. Buck could remember from whom they had received it, as large numbers of birds in

* Birds of Long Island, p. 231.

† Forest and Stream, Vol. X, p. 235.

‡ Bull. Nutt. Orn. Club, Vol. VI, p. 126.

the flesh are sent to them from the surrounding country, of which they keep no record. Mr. Lucas was very positive, however, that it had been received in the flesh, from Long Island, during the winter of 1887-88. His reasons for his belief were that he knew from the make-up of the skin and the material used in its preparation, that it was his own handiwork. Furthermore, he said, his firm never received any birds or skins other than from Long Island. He was almost certain that they had had this species of Woodpecker before. The specimen is now in my collection, No. 1028. This record adds a new member of the order Pici to the Long Island list, it not being included in the lists of either Messrs. Giraud or Lawrence.

10. *Contopus borealis*. OLIVE-SIDED FLYCATCHER. — During the night of August 19, 1888, an individual of this species struck Fire Island Light and was sent to me by Mr. John G. Skipworth, 1st Asst. Keeper, with forty-two other birds of various kinds. Wind west, rather squally, with rain and fog. This makes the third specimen to be recorded from Long Island, the prior records having been made by Mr. N. T. Lawrence* and Mr. DeL. Berier.†

My correspondent, Mr. A. H. Helme, of Miller's Place, Suffolk Co who is well known to very many members of the Union, tells me that he has seen this Flycatcher on Long Island but has never taken a specimen.

11. *Calcarius lapponicus*. LAPLAND LONGSPUR.—Mr. John Hendrickson shot one October 18, 1888, at Long Island City. He informs me that it was alone, and was secured as it flew up from among some weeds growing on the edge of a drain. From the fact that Horned Larks (*Otocoris alpestris*) were first seen that day, he thinks it not unlikely that the Longspur had migrated southward in their company. This is the earliest autumn date of which I have any record.

12. *Spiza americana*. DICKCISSEL.—At the time when Mr. Giraud was collecting data for his list of Long Island birds, the Black-throated Bunting must have been a not uncommon bird. This is the only inference that can be drawn from his statement: "About the middle of May the Black-throated Bunting arrives on Long Island from the South. It prefers the grain, grass and clover fields, where it continues its oft-repeated chirrup until the early part of August, then becoming silent. In the early part of September it migrates southward."‡ The Lawrence collection contains a male and a female specimen from Long Island. Mr. Helme, of Miller's Place, was so fortunate as to secure two specimens this fall, both of which he considered migrants. They were also the first that he had ever shot on Long Island. The first one, a young male, was secured September 29, and the second was taken October 10. Mr. Helme

* Forest and Stream, Vol. X, p. 235.

† Bull. Nutt. Orn. Club, Vol. V, p. 46. The specimen recorded by Mr. N. T. Lawrence in 'Forest and Stream' was subsequently recorded by Mr. Robert Lawrence in Bull. Nutt. Ornith. Club, Vol. V, p. 116.

‡ Birds of Long Island, p. 100, 1844.

was crossing the field in which he obtained the specimen September 29 when he saw what he supposed were three individuals of this species. They, however, flew before he had a chance to secure either of them. He returned to the same field about noon and flushed one which was in company with some Song Sparrows. It flew into an apple tree when he secured it. It proved to be a male, and the exact counterpart of the one first shot. The above are the only Long Island records that I am cognizant of since the Giraud and Lawrence lists were published.

13. *Lanius ludovicianus*. **LOGGERHEAD SHRIKE.**—The first record of this species on Long Island was made by Mr. N. T. Lawrence in 1878.* No other records have been made since, that I am aware of. I have the pleasure of adding a second record; a male, young of the year, taken August 28, 1888, at Springs, Suffolk Co. It was sent to me in the flesh by a correspondent, Mr. Daniel D. Parsons, who occasionally sends me birds, especially those that are new or strange to him. His letter of transmittal stated that the Shrike "was alone, and was shot from the highest branch of an apple tree, in the middle of a field. I never saw one like it before." From the date of capture, and also from the locality—near the extreme eastern part of the Island—it is probable that this specimen was bred on Long Island or in the adjoining State of Connecticut.

14. *Helminthophila peregrina*. **TENNESSEE WARBLER.**—This species was introduced into the Long Island list by Mr. George N. Lawrence.† In his collection, now in the American Museum of Natural History, New York City, there is one specimen, a male, from Long Island. Since the above I can find no other records from that locality. I have had the pleasure of adding to my collection four specimens from Long Island, from the lighthouses.

Sept. 23, 1887. Sex ? Fire Island Light. Wind, N. N. E., very fresh; partly cloudy.

Sept. 1, 1888. Sex ♂ Fire Island Light. Wind, N. W., light; cloudy.

" " " " ♂ " " " " " " " " " "

" 19, " " ♂ Montauk Point Light. " N. N. E., moderate; cloudy.

15. *Dendroica castanea*. **BAY-BREASTED WARBLER.**—Mr. Giraud said of it: "The Bay-breasted Warbler is among the last of the Genus that arrives among us in spring. During some seasons it occurs in considerable numbers, but in general it is by no means plentiful."‡ The Lawrence collection contains two examples, a male and a female, from Long Island. Mr. A. H. Helme, who is an indefatigable and very careful collector, kindly permits me to record the specimens of this species that he has taken at Miller's Place, Suffolk Co., since he has been collecting. May 29, 1882, a male; May 16, 1884, a male; September 12, 1888, one, sex not given. September 14, 1888, he was sure he saw another, but

*Forest and Stream, Vol. X, p. 235.

†Ann. Lyc. Nat. Hist., Vol. VIII, p. 284, 1866.

‡Birds of Long Island, p. 62.

it was not secured, and on the 29th of the same month he secured one making his second specimen for this fall. I have never met with it in any of my collecting trips, nor has my son, nor have I ever found a light-house specimen, although I have received and examined carefully hundreds of Warblers from the lights during the past few years.

16. *Geothlypis formosa*. KENTUCKY WARBLER.—Mr. Giraud says: "The specimen in my possession was shot in the woods at Raynor South, —and a few others have been procured in the same section. On no other part of the Island have I observed it, and I consider it with us a very scarce species."* In the Lawrence collection in the American Museum, there is one specimen, a male, labelled, "Raynor South, May 18, 1834." Since the lists of Giraud and Lawrence were published no other record has been made; therefore, it gives me pleasure to record a specimen, a male, which was sent to me by Mr. Skipworth from Fire Island Light, where it struck during the night of August 19, 1888; wind west, squally, with rain and fog.

17. *Sylvania mitrata*. HOODED WARBLER.—"With us, the Hooded Flycatching Warbler is not abundant" is the note of Giraud.† In the Lawrence collection in the American Museum, there is but one specimen, a male, from Long Island. The only specimen* that I have in my collection, and also my only record from Long Island, is of one that struck Fire Island Light, during the night of September 1, 1888. Wind, N. W., light; cloudy.

GRAPHIC REPRESENTATION OF BIRD MIGRATION.

BY WITMER STONE.

EVERY ONE interested in bird migration no doubt notices the steady increase in species and individuals as the spring advances, the number reaching its maximum some time in May, and then falling off and becoming uniform during the early summer when the birds have completed their migrations and are busy building their nests and rearing their young. Again in the latter part of summer the number increases, reaches its maximum in September, and then steadily decreases until winter, when the minimum is reached.

*Birds of Long Island, p. 50.

†Ibid., p. 48.

I have always desired to collect sufficient data to form some definite idea of this rate of increase and decrease during the different seasons of the year; and for some years past have conducted observations chiefly with this end in view. To estimate the number of individual birds in a given locality at any time, especially during the migrations, is wellnigh impossible, and therefore the only investigations that could be carried on were with regard to the number of species. Living in a locality favorable for ornithological investigations I have noted for several years the species of birds seen on each day from January to June inclusive, and, with the assistance of several others interested in the subject, have accumulated a considerable amount of data. On some days in winter no birds were observed at all,—the English Sparrow of course excepted—on other days perhaps only a Snowbird or a Crow was recorded. In spring, too, on rainy days the number of species noted was very small, while on clear days when the migration was at its height upwards of fifty species were sometimes recorded on a single morning. Similar observations were carried on in the fall, but owing to the difficulty in recognizing many species at that season on account of the thick foliage of the trees, the results were much less accurate and therefore less interesting.

While I said above that an estimate of the number of individuals was hardly possible, this is perhaps not strictly the case. For, as the number of individuals of a given species increases, the probability of seeing that species every day increases, and hence by taking an average of the number of species seen per day for each consecutive week, the results obtained must show an increase in regard to individuals as well as species. Moreover, the comparison of the total number of species seen in each consecutive week would show the increase in regard to species alone.

After noting the dates of arrival and departure of each species seen during the year, the result may be represented as in Fig. 1 (a small portion of the spring migration, 1888, at Germantown, Pennsylvania), the horizontal lines representing the time of the birds' stay, and the vertical columns the consecutive weeks. The horizontal lines represent, of course, only the probable continuous presence of a species, for very few birds are actually seen every day from their arrival to their departure. Now by counting the number of lines crossing a given column it is easy to see

the number of species that occurred in the locality during that week. And a curve constructed from these results (Fig. 2, A) will show the variation in the number of species during the period that the investigations cover. By using the actual number of

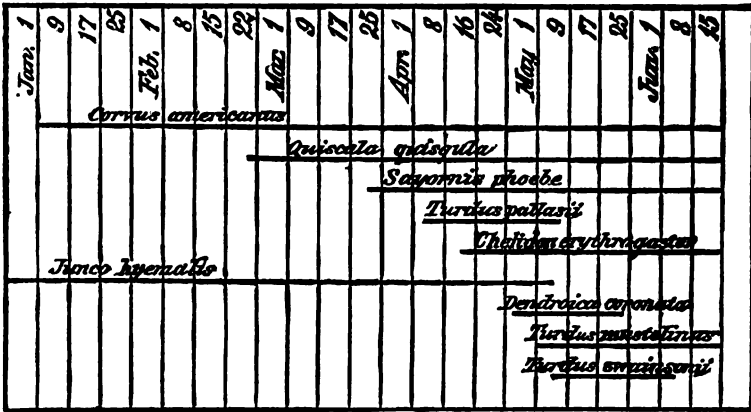


Fig. 1. Portion of Chart showing the birds recorded at Germantown, Pa. Spring, 1888.

species seen during each week, as recorded in the notebook, a curve may be constructed which will be quite similar though less regular, since the meteorological conditions here play an important part. For instance, on a cold or rainy week the number of species observed will be less, simply because it was impossible to make many observations. A curve (Fig. 2, C) constructed on the average number of species seen per day, for each week, will, as stated above, show the variation in regard to both individuals and species.

Looking at curve A, Fig. 2 or 3, representing the variation in the number of species recorded at Germantown, Pa., during the spring migration of 1888, we see the number at a minimum through the winter, until about the middle of February. At this time the first increase is noticed, caused by the arrival of the Grackles, Red-winged Blackbirds, Robins, and Bluebirds. Then the number is stationary until the second week of March, when a gradual increase begins which continues more rapidly during April and still more rapidly during the first week of May. The number finally reaches its maximum in the second week of that month and then decreases rapidly until it again becomes station-

ary in June. These variations represent first the arrival of such early birds as the Meadowlark, Dove, Chipping Sparrow, Field Sparrow, etc., in the middle or latter part of March; then the Kinglets, Towhee, Chimney Swift, etc., in April, and finally in May the vast influx of Warblers and other birds, many of which remain but a few days and then pass on to the north; leaving us by the second week of June with only the summer residents. The departure of the several winter visitants during March and April is more than balanced by the arrival of species from farther south.

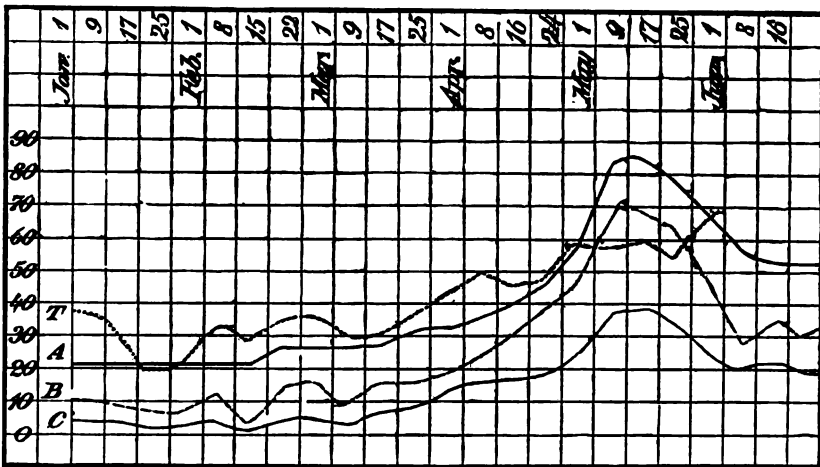


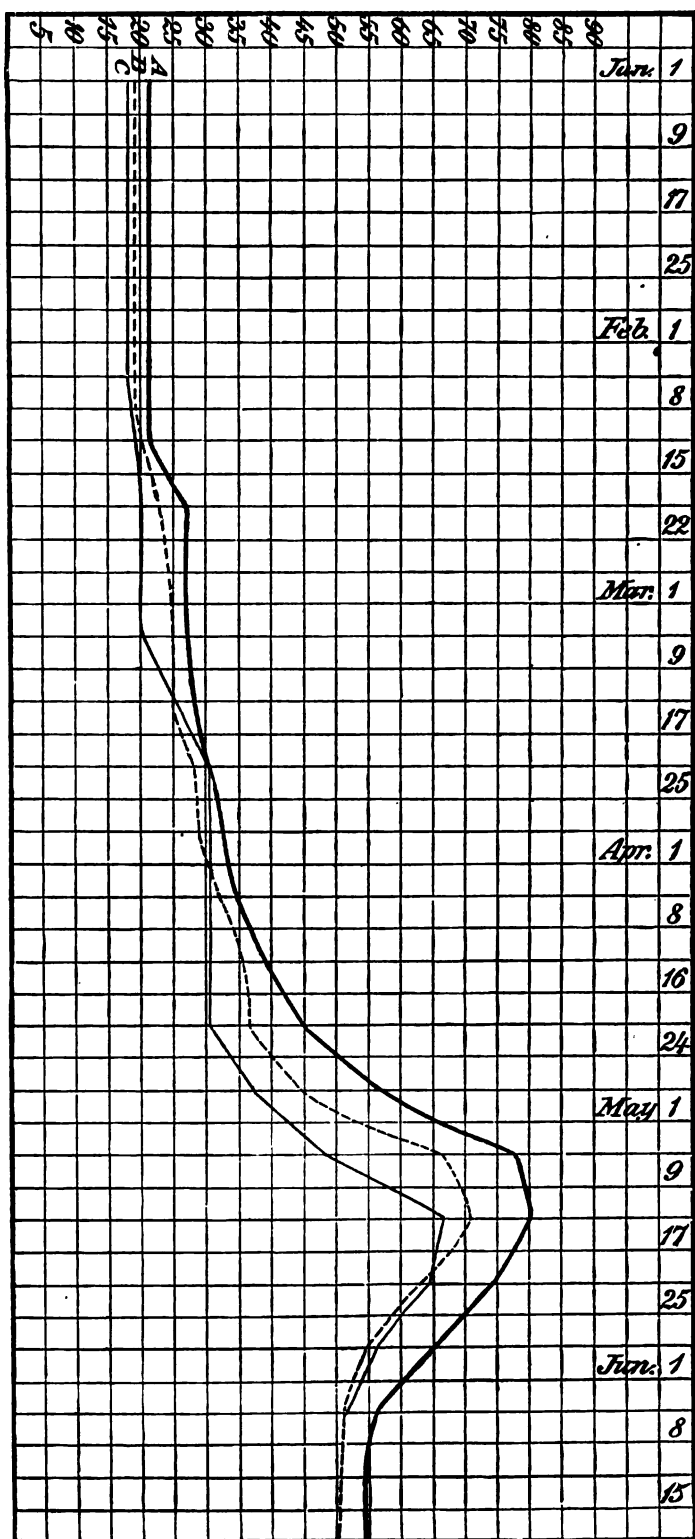
Fig. 2. Spring Migration at Germantown, Pa., 1888.

- A. Curve showing the number of species present.
- B. do. based on the *actual* number of species recorded each week.
- C. do. based on the average number of species seen per day, for each week.
- T. Curve of temperature variation, spring, 1888.

It will be seen from curve B, Fig. 2, that the number of species actually seen never equalled the number of species that were present, though it came very near it about the 1st of March and again about the middle of April. The prominent 'drops' in this curve during the winter and early spring will be found to correspond to spells of severe weather at those times.

By comparing the three curves of Fig. 3, the remarkable similarity of the spring migration for the past three years can readily be seen. The number of species seen in the different years varied considerably, but this is more a function of the time that was

Fig. 3. Curves showing the number of species present at Germantown, Pa., during spring migration. A. 1888. B. 1887. C. 1886.



available for making the observations. The general form of the curves will be seen to be very similar; the first increase always takes place in the middle of February; and the greatest increase during the last week of April and the first week of May; while the maximum is reached in the second week of the latter month.

Finally, comparing curves A and T and Band T, Fig. 2, we see that there is no remarkable resemblance between the temperature variation and the increase in the number of species; but quite a striking resemblance between the temperature variation and the number of species actually recorded. This is especially the case during the winter and early spring when it will be noticed that almost every sudden increase in the number of species seen was accompanied by a corresponding rise in temperature, and *vice versa*.

Such investigations and comparisons as the above seem to me to form one of the most interesting branches of the study of bird migration; and though the observations here recorded are too few to establish any general laws, I think that similar investigations carried on for a number of years would bring to light many important facts in regard to the subject, and would perhaps show that bird migration is much more regular than is generally supposed.

NOTES ON THE BIRDS OF THE MAGDALEN ISLANDS.

BY DR. LOUIS B. BISHOP.

THE FOLLOWING list is compiled exclusively from notes taken by my friend, Mr. Robbins, and myself between June 21 and July 18, 1887. The unfavorable weather during most of this period together with the time lost in travelling among the islands probably caused us to overlook many species; but I am at a loss to account for our failure to find such birds as *Ampelis cedrorum*, *Empidonax minimus*, *Poocætes gramineus*, and *Parus atricapillus* which were found by Mr. Cory to be tolerably common in 1878, particularly as both of us looked carefully for several of

them. Teal were observed on two occasions by Mr. Robbins, but he was unable to determine the species. I have endeavored to give as nearly as possible the dates of breeding of the different species, hoping that they may be of assistance to oölogists intending to visit these islands. The Magdalen Islands are so well known to naturalists that any description of them here would be out of place, and the present status of the different species breeding at the Bird Rocks has been so well defined by Mr. Lucas in 'The Auk' for April, 1888, that any further comment is unnecessary.

1. *Colymbus auritus*. HORNED GREBE.—One seen in a small pond at East Point on June 29, and the fragments of an egg of some species of Grebe were found on the beach near by. The people living on the islands call this bird the Water-witch. It undoubtedly breeds, but is not at all common.

2. *Urinator imber*. LOON.—One seen in the waters of the Gulf off Grosse Isle on June 25. Probably breeds.

3. *Fratercula arctica*. PUFFIN.—Breeds abundantly in twisting burrows on the top of Great Bird Rock, and in the crevices of the cliffs on Bryon Island.

4. *Cephus grylle*. BLACK GUILLEMOT.—Breeds abundantly in scattered colonies on most of the islands of the group. None were seen on the Bird Rocks.

5. *Uria troile*. MURRE.—Common. Breeds on Bryon Island and the Bird Rocks. About a dozen specimens of the lately eliminated species *U. ringvia*, or, as at present considered, phase of plumage of *U. troile*, were breeding on the cliffs of Great Bird Rock. As far as we were able to judge from the limited time at our disposal they were in pairs, and seemed to be entitled to the rank of a distinct species. An egg obtained by Mr. Robbins from one of these peculiarly marked birds could not be distinguished from those of the other Murres.

6. *Uria lomvia*. BRÜNNICH'S MURRE.—Breeds abundantly on Great Bird Rock. Six Murres shot from the top of the Rock were of this species, and none of the common Murres were seen there.

7. *Alca torda*. RAZOR-BILLED AUK.—Breeds, but not in large numbers, on Great Bird Rock, Bryon Island, and Entry Island. On Great Bird Rock this species with *Fratercula arctica* breeds principally near the top of the cliffs, leaving the lower ledges for the Gannets, Kittiwakes and Murres.

8. *Rissa tridactyla*. KITTIWAKE.—Breeds abundantly on Great Bird Rock, but was not observed elsewhere among the islands.

9. *Larus marinus*. GREAT BLACK-BACKED GULL.—A flock of between twenty and thirty in the adult plumage was observed on a sand bar on the West Point of Amherst Island, July 9. No evidence of the breeding of this species could be obtained.

10. *Larus argentatus smithsonianus*. AMERICAN HERRING GULL.—Single individuals were seen at various dates. Probably it does not breed, although a few may on East Point.

11. *Sterna hirundo*. COMMON TERN.—Breeds abundantly on the sand beaches of most of the islands.

12. *Oceanodroma leucorhoa*. LEACH'S PETREL.—Breeds in small numbers on Great Bird Rock, Bryon Island, and probably on most of the other islands, although we were unable to find nests. I am indebted to Mr. Lucas and Mr. Palmer for the knowledge of the presence of this species on the Bird Rocks.

13. *Sula bassana*. GANNET.—Breeds abundantly on the Bird Rocks. The fishermen and others collect large numbers of Murres' and Gannets' eggs almost daily during the breeding season.

14. *Phalacrocorax dilophus*. DOUBLE-CRESTED CORMORANT.—It is with great hesitation that I include this species, as none were seen by either Mr. Robbins or myself. A fisherman informed me that a few pairs of "a large black bird with two plumes on the sides of the head" yet nested on Shag Rock, where this species formerly bred in considerable numbers. He also claimed to have found their eggs that summer. Unfortunately we were unable to visit Shag Rock ourselves to verify or disprove his statement.

15. *Merganser serrator*. RED-BREASTED MERGANSER.—Common, breeding abundantly on some of the islands. On Seal Island, a small island a few acres in extent lying in the large lagoon near Grand Entry, and thickly covered with a low growth of spruces, we found on June 24 in the space of a couple of hours eight nests containing sixty-five eggs. The eggs were all fresh and most of the sets were incomplete, showing that this bird breeds very late. The nests were simply a few leaves and feathers hidden under the overhanging branches of a spruce, and were placed from ten to forty yards from the water.

16. *Anas obscura*. BLACK DUCK.—Common summer resident, breeding in the marshes bordering the small fresh-water ponds in the close neighborhood of the salt water.

17. *Oidemia deglandi*. WHITE-WINGED SCOTER.—A flock of a dozen or more remained in the waters of the Gulf near Grindstone Island during our entire stay. However, I do not think that this species breeds anywhere among the islands.

18. *Botaurus lentiginosus*. AMERICAN BITTERN.—Common summer resident, breeding in the open swamps on all the principal islands. A set of four slightly incubated eggs was taken on Grindstone Island on July 14.

19. *Gallinago delicata*. WILSON'S SNIBE.—Abundant. Breeds plentifully on all the islands. The young were able to fly by the latter part of June.

20. *Tringa minutilla*. LEAST SANDPIPER.—One seen on Grindstone July 5, and four others on July 14. Probably does not breed.

21. *Totanus melanoleucus*. GREATER YELLOW-LEGS.—We found a

flock of five on the borders of a small pond on Grindstone, July 16. I think that quite probably a few breed.

22. *Actitis macularia*. SPOTTED SANDPIPER.—Rather common, breeding on most of the islands.

23. *Ægialitis semipalmata*. SEMIPALMATED PLOVER. — Tolerably common, breeding on the beaches not far from high-water mark.

24. *Ægialitis meloda*. PIPING PLOVER. — More common than the last, and breeding in the same situations. Young fully fledged before the middle of July. On the sand bar, about half a mile long and a hundred yards wide, stretching between Grindstone and All Right Islands, two pairs of this species and three pairs of *Æ. semipalmata* were breeding. The Piping kept half of the beach to themselves, the Semipalmated taking the rest, neither species, as far as we were able to observe, ever venturing on the territory belonging to the other.

25. *Circus hudsonius*. MARSH HAWK. — Not common. One seen June 23.

26. *Falco columbarius*. PIGEON HAWK.—Tolerably common summer resident. Three noted. One seen on Entry July 8, a male taken on Grindstone July 15, and another seen near the same place July 17. The Grindstone birds were probably a pair breeding.

27. *Asio accipitrinus*. SHORT-EARED OWL.—I saw an Owl that I am positive was of this species in the marshes between All Right and Grand Entry on June 23, but as I was unable to shoot it the identification remains in doubt.

28. *Ceryle alcyon*. BELTED KINGFISHER.—Abundant summer resident, breeding on all the islands. It breeds rather late, as a set of fresh eggs was taken at Grosse Isle, June 28.

29. *Dryobates villosus*. HAIRY WOODPECKER.—One seen by Mr. Robbins on Grindstone, June 22.

30. *Dryobates pubescens*. DOWNY WOODPECKER.—One seen on Grindstone, June 21.

31. *Colaptes auratus*. FLICKER.—Common, breeding on all the islands.

32. *Tyrannus tyrannus*. KINGBIRD.—One seen and heard frequently on Grindstone on the afternoon of June 21, the day of our arrival. The next day it was gone, and no other Flycatcher could we find on any of the islands during our entire visit, although Mr. Cory found *Empidonax minimus* quite common in 1878.

33. *Corvus corax principalis*. NORTHERN RAVEN.—Common. Breeds on all the islands, but most frequently on those least inhabited.

34. *Corvus americanus*. AMERICAN CROW.—Abundant, breeding on all the islands, and showing little fear of man. A set of four fresh eggs was taken on Grindstone, June 22, within fifteen yards of a barn.

35. *Scolecophagus carolinus*. RUSTY BLACKBIRD.—Common. Breeds abundantly in the swamps at East Point. They appeared to have finished breeding by the end of June.

36. *Carpodacus purpureus*. PURPLE FINCH.—Rather rare. A male

seen on Grindstone, June 23, and others heard singing on different occasions.

37. *Loxia curvirostra minor*. AMERICAN CROSSBILL.—Rare. A male seen on Grindstone, July 4.

38. *Loxia leucoptera*. WHITE-WINGED CROSSBILL.—Common on Grindstone and Entry, and probably on the other islands. A pair of fully fledged young were taken on July 12.

39. *Spinus pinus*. PINE SISKIN.—One of the most abundant birds until July 10. They finish breeding before the first of July, and by the twelfth most of them have left the islands.

40. *Ammodramus sandwichensis savanna*. SAVANNA SPARROW.—Very abundant, breeding in every open field on the islands, especially in the neighborhood of the shore. Most of the Savanna Sparrows taken wanted the yellow on the wing, but a careful search failed to reveal any specimens of *A. princeps*.

41. *Zonotrichia albicollis*. WHITE-THROATED SPARROW.—Common, nesting about the last of June.

42. *Spizella pusilla*. FIELD SPARROW.—A pair of this species in worn breeding plumage were taken on Entry Island July 8; they evidently had a nest in the immediate vicinity. This is, I believe, the most northern record of the breeding of this species on the Atlantic coast.

43. *Junco hyemalis*. SLATE-COLORED JUNCO.—Breeds, but seems to be rather irregularly distributed among the islands, being much more common on some than on others.

44. *Melospiza fasciata*. SONG SPARROW.—Rather common summer resident. I found this species more abundant on the open hills, two hundred to three hundred and fifty feet above the sea, in the interior of Entry Island than anywhere else.

45. *Melospiza georgiana*. SWAMP SPARROW.—Not as common as the last. A pair were found breeding in a small swamp on Grindstone July 14, and several others seen later. The male of the pair taken July 14, inclined to melanism in plumage and had a black spot .95 inch long by .45 broad on the right side of the breast. The female was an unusually small specimen, the wing measuring 2.16 and the tail 2.28 inches.

46. *Passerella iliaca*. FOX SPARROW.—Rather common, breeding on all the islands about the last of June. The nest is larger than that of any other Sparrow with which I am acquainted.

47. *Clivicola riparia*. BANK SWALLOW.—Tolerably common, breeding on Grindstone.

48. *Mniotilta varia*. BLACK-AND-WHITE WARBLER.—Rare. A male with the black of the throat almost uninterrupted was taken on Grindstone July 14, and a female observed on the 17th. Probably breeds.

49. *Dendroica æstiva*. YELLOW WARBLER.—Common summer resident.

50. *Dendroica coronata*. MYRTLE WARBLER.—Common summer resident, nesting in the latter part of June.

51. *Dendroica maculosa*. MAGNOLIA WARBLER.—Rare. A male taken on Grindstone, July 16.

52. *Dendroica striata*.—BLACKPOLL WARBLER.—One of the most abundant birds, breeding everywhere. This bird and *D. coronata* choose the same localities for their nests—dense spruce thickets, but while *D. striata* generally nests close to the trunk, *D. coronata* places its more spacious home out on a horizontal branch. Fresh eggs were taken as late as July 12.

53. *Dendroica virens*. BLACK-THROATED GREEN WARBLER.—Rare. One only noted, and as that was frequently heard singing at the same place on Grindstone, it undoubtedly had a nest in the vicinity.

54. *Seiurus aurocapillus*. OVENBIRD.—Tolerably common on Grindstone, where one was seen by Mr. Robbins, and others heard singing on various occasions by us both.

55. *Seiurus noveboracensis*. WATER-THRUSH.—Rather rare. One taken on Grindstone July 15, and another seen on the 16th.

56. *Geothlypis trichas*. MARYLAND YELLOWTHROAT.—I hardly like to include this species, as, although we found it fairly common in Nova Scotia, and are both positive that we heard its song many times on the Magdalens, I was unable to obtain a single specimen.

57. *Setophaga ruticilla*. AMERICAN REDSTART.—Abundant summer resident, especially on Grindstone. Strange to say we saw about ten females to one male; the young could not have been fledged at the time of our visit.

58. *Troglodytes hiemalis*. WINTER WREN.—Tolerably common, heard much more frequently than seen.

59. *Sitta canadensis*. RED-BREASTED NUTHATCH.—Tolerably common summer resident.

60. *Parus hudsonicus*. HUDSONIAN CHICKADEE.—Common. Young fledged by July 1. This was the only Chickadee found on the islands, although a careful search was made for *P. atricapillus* which Mr. Cory found more abundant than the present species.

61. *Regulus satrapa*. GOLDEN-CROWNED KINGLET. — Abundant, breeding on all the islands. A nest taken by Mr. Robbins on Grindstone July 16, was situated in a spruce, about thirty-five feet from the ground. It was firmly attached by the brim to the branch above and at the same time rested on, and was slightly fastened to, the small branches below. The young at this date were able to fly.

62. *Turdus fuscescens*. WILSON'S THRUSH.—Common summer resident.

63. *Turdus aliciae*. ALICE'S THRUSH.—One taken, and others that I am confident were of this species observed, in an extremely thick growth of small spruces on Grindstone July 15. Probably breeds. The measurements of the bird taken are: wing, 3.69; tail, 2.99; culmen, 0.52, and tarsus, 1.14 inches.

64. *Turdus ustulatus swainsonii*. OLIVE-BACKED THRUSH.—Noted several times, but is not common. Breeds.

65. *Turdus aonalaschkæ pallasii*. HERMIT THRUSH.—Common, breed on most of the islands. I was quite surprised to find a single bird of

this species apparently thoroughly at home on Great Bird Rock. A more unsuitable place for a bird fond of the deep woods cannot be imagined.

66. *Merula migratoria*. AMERICAN ROBIN.—Very abundant, breeding everywhere. Most of the nests contained fresh eggs at the time of our arrival.

DESCRIPTION OF THE SUPPOSED NEST AND EGGS OF *ZONOTRICHIA QUERULA*, HARRIS'S SPARROW.

BY CAPT. CHARLES E. BENDIRE.

FOR the purpose of drawing the attention of ornithologists located along the northern border of Montana and Dakota, and throughout southern British North America, to the fact that the nest and eggs of this interesting species remain still unknown, and to the probability of its breeding in these regions, instead of further north, I will state that none of the large collections of birds, nests and eggs made by the following gentlemen of the Hudson's Bay Company, Robert McFarlane, Strachan Jones, T. McDougall, Donald Gunn, C. P. Gaudet, and J. Lockhart, and which were donated to the Smithsonian Institution at Washington, D. C., contained specimens of this species, although representing nearly every other bird to be found breeding throughout the vast interior of the former Hudson's Bay Territory. The explorations made by these gentlemen were thorough and continued through several seasons, and, chiefly through the good efforts of Mr. Robert Kennicott, all their valuable field notes and an immense amount of material were brought together.

From the fact that no specimens of *Zonotrichia querula* were obtained throughout the explorations, which extended well into the Arctic Circle, and began about the 54th parallel, I necessarily believe that the summer home of Harris's Sparrow, if properly looked for, will be found along the foothills of the Bearpaw and Chief Mountains in Montana, along the Turtle Mountains in Dakota, and their centre of abundance probably near Duck Mountain, Manitoba, as well as in suitable localities in the Territories of Alberta and Assiniboia, south of Lat. 54°.

During the summer of 1885, while I was stationed at Fort Custer, Montana, one of my men, who was well posted about the birds of that region, and helped me to collect a good many, while out hunting one day found a nest and four eggs of some Sparrow, without, unfortunately, securing the parent, and brought them in for me. I saw at a glance that these eggs were new to me, and visited the place where the nest was found next day, in the hope of possibly still finding the owners about the locality, but failed in this. The eggs in question differ materially in coloration from those of the other species of *Zonotrichia*, as well as from those of the genera *Passerella*, *Melospiza*, and *Pipilo*, all of which are represented by good series in the National Museum collection.

The nest was found June 24, 1885, in a dense willow thicket close to the banks of Little Horn River, about one and a half miles above the post. It was placed between several young willow twigs, about eight or ten inches from the ground, compactly built of strips of decayed willow bark, coarse grasses, etc., and lined with finer materials of the same kind. Outwardly the nest was about four and a half inches wide by three deep; the inner cavity was two and a half inches wide by two in depth. In its general make-up it resembled the average nest of a *Passerella*. The eggs contained small embryos. They resemble certain types of Cardinal's eggs (*Cardinalis cardinalis*) more than anything else, but are considerably smaller. There is no trace of green whatever noticeable in their ground color. This green tint is always found to a greater or less extent in all the eggs of the genera *Zonotrichia* and *Passerella*, and with rare exceptions in *Melospiza* as well, while here, it is a creamy or buffy white, and the shell is also more lustrous. The eggs are thickly spotted and blotched with dark brown and burnt umber, and more or less mixed with pale heliotrope purple and purplish gray. They are ovate in shape, and measure $.89 \times .70$, $.88 \times .69$, $.86 \times .69$ and $.85 \times .65$ inch.

I am certain that these eggs are not those of the Cardinal, which is not found as far north as Fort Custer and would surely have been noticed by me, if it occurred there, and unless they should be abnormally colored eggs of *Pipilo maculatus arcticus*, which is barely possible, although also rather small for this species, they will certainly prove to be those of Harris's Sparrow. While I do not believe that it is a constant and common summer

resident in the vicinity of Fort Custer, it probably breeds there as a straggler; I failed to meet with this species during the summer, but found it not at all uncommon during its fall migration. Specimens shot by me in the early part of October are now in the National Museum collection. I found them associated with White-crowned Sparrows and Arctic Towhees principally, scattered in small flocks through the undergrowth along the Big and Little Horn River bottoms, and it seems to confine itself to the shrubbery found along the streams. Specimens were shot by me as late as October 21, 1885.

A SUMMARY OF OBSERVATIONS ON THE BIRDS OF THE GULF COAST OF FLORIDA.

BY W. E. D. SCOTT.

(Continued from p. 18.)

Grus mexicana. SANDHILL CRANE. — This species is resident in the vicinity of the Gulf Coast of Florida at least as far north as Cedar Keys, and south of that place in suitable localities.

What is known locally as 'flat woods' is the particular kind of environment that the birds seem to like best. The characteristics of such regions are very low, level, barren lands, sparsely grown up with stunted pines and interspersed with open areas covered with coarse grass. The open areas are frequently covered by shallow ponds of water of greater or less extent. In the rainy seasons these ponds become of vast size, in fact the whole surface of the ground in the 'flat woods' is at such seasons flooded with water in depth varying from an inch or more to a foot. In such regions the Sandhill Cranes are to be found in small parties and in pairs the year round, and the drier portions are chosen for nesting and breeding. About Tarpon Springs the birds mate in January, build the last of that month or early in February, and the young are hatched about March 1. There are generally two young in a brood. Downy birds before me taken near Tarpon Springs, March 15, 1887, are from ten days to two weeks old.

Aramus giganteus. LIMPKIN. — This species, like the last, though an abundant bird in some localities, is almost unknown in others. So far as I am aware it ranges as far north as Palatka and south into the Everglades. In Hillsboro' County I have never met with it, but in Pasco, Hernando,

and Sumpter Counties it is abundant and conspicuous in favorable areas. The breeding season of course varies very considerably according to locality, the more northern representatives breeding in April.

Where the birds occur and have not been greatly persecuted, they are very tame and unsuspicious, but in certain localities where they were once common they have been almost exterminated, being desirable for food. They were formerly abundant on the Ocklawaha and Withlacoochee Rivers and at Panasoffkee Lake, and at all of these points were resident. In the vicinity of the coast and salt water the birds are, so far as I am aware, unknown, and the nearest points where I have found them have been at least twenty miles in the interior.

Rallus elegans. KING RAIL.—This Rail does not seem to be of unusual occurrence in the vicinity of Tarpon Springs, frequenting the reedy swamps of the fresh water ponds and streams, where it seems to occupy a position corresponding to that of the form of *longirostris* in the salt marshes, though in not nearly so great numbers. I have several specimens from the upper waters of the Caloosahatchie River taken from November to January. On August 5, 1886, and again on the 10th of that month, I took young birds of the year in the first plumage. This was within a few miles of Tarpon Springs.

Rallus longirostris crepitans. CLAPPER RAIL.—The only typical specimens of this form that I have met with were a pair, mated and apparently breeding, that were taken by Mr. W. S. Dickinson at Anclote Keys, on May 19, 1887. These birds are now in my collection and are numbered 4128 and 4129 respectively. The only large Rail so far taken on the island of Key West by Mr. J. W. Atkins is a female of this species, secured on December 24, 1888. It is number 3207 in my bird catalogue. Mr. Atkins thinks that Rails of all kinds are uncommon on the island in question.

Rallus longirostris scottii. SCOTT'S RAIL.—This is by far the commonest species of Rail in the vicinity of Tarpon Springs, and in fact on the Gulf Coast from Cedar Keys south to Charlotte Harbor, and it breeds throughout this range at least and probably to the north and south of the points indicated.

They are confined, so far as I am aware, to the salt water marshes, and about Tarpon Springs are abundant the year around. They do not appear to be as retiring in their habits as are their congeners, and are frequently to be seen feeding at low tide on the exposed banks of mud and sand. At such times they are very tame and unsuspicious, and may be approached within a few feet. If alarmed, they run to the neighboring shelter of coarse grass of the salt water marsh, but presently return to feed, even though the intruder remains close at hand. Now and then one or two may be seen *swimming* some narrow arm of the bayou, and several times I have found pairs at least three or four hundred feet from shore, swimming about and apparently feeding on some small fish or crustacea.

They begin to mate in February, and the breeding season is at its height by the first of April. The nesting habits do not materially differ from

those of the other forms of salt water Rails that I am acquainted with, and the number of young in a brood is about the same as with *crepitans*. It is probable that two broods are raised, or it may be that individuals differ as to breeding time, as I have found downy young from early in May till about the first week in July. During the mating season the male birds are very pugnacious and resent any intrusion from others of the species. At such times I have seen them have pitched battles, and finally, one giving in and taking to flight, the victor would pursue the vanquished on the wing for several hundred feet and then return to the neighborhood of the particular tuft of grass that sheltered the nest. At such times, on alighting, the peculiar rattling notes so characteristic of the bird are indulged in with more than ordinary vigor.

ON INDIVIDUAL COLOR VARIATION IN *Rallus longirostris scottii*.—For the purpose of making the comparisons which follow more intelligible to such of my co-workers as have not seen this form, the description of an average specimen of this new race is here appended.

Adult ♂, Collection of W. E. D. Scott, No. 5047. Tarpon Springs, Florida, December 27, 1887. Above deep olive brown, the feathers of the interscapular region edged broadly with a lighter shade of drab, more or less suffused with olive. This edging of the feathers is also present to a less degree on the upper posterior half of the neck. From here forward the color, deep olive brown, is immaculate, gradually shading into drab on the sides of head and face. Area in front of eye dark olive-brown shading gradually into the drab of the sides of face. A more or less distinct line of a lighter shade of olive brown, or often cinnamon, extends from the upper mandible to the area above the eye. Beneath, breast and neck ashy olive with a very perceptible cinnamon tinge, becoming whitish on upper throat and chin. Sides, flanks, and axillars deep olive-brown barred with white. Lower tail-coverts white with scattered olive-brown markings.

The following notes on the individual variation in color are based on a series of fifty adult birds taken at all seasons of the year and about equally divided as to sex. Above the variation is not great though the width of the edging on the feathers of the interscapular region and of the larger wing-coverts varies, being widest and most pronounced in the lighter colored birds. The tendency of the darker individuals is to have these markings suffused with dark olive brown. The superciliary line and lighter areas of the head also are often obscured by a similar shade of color in the darker birds.

Beneath and on the flanks and sides the variation is much more marked. Twelve of the fifty birds have tawny yellow, and in three cases decidedly bright cinnamon, breasts. But in all of these there is a varying suffusion of olive in the region where the neck and breast join. The neck proper is of about the same shade as the breast, though there is a tendency of the cinnamon shade to become lighter and finally to change insensibly to white on the throat and chin. Six of the fifty birds are clear dark olive beneath, becoming very little lighter on the throat, and lacking any tinge or suggestion of the cinnamon shade. The amount of whitish

barring on the sides, flanks, and axillars, varies greatly and seems to correspond to the general tone of the color of the individual. The birds with cinnamon or yellowish breasts have clearly defined whitish bars, generally rather more than an eighth of an inch in width. The birds with clear olive below, have their barring often obscure and in three individuals examined the bars are almost obsolete on the flanks and sides, and not present at all on the axillars. The amount of white on the lower tail-coverts is at a minimum in these darker birds and often assumes the form of bars, *narrower* than the dark olive brown areas between. These are some of the more noticeable features in the color variation in the series of birds considered, and the remaining individuals not before alluded to present every degree of intermediate phase of color. There does not seem to be any correlation, in this tendency to vary in color, to the age or sex of the individual, or to the season of the year, for I have birds taken in winter that are of both extremes, and breeding birds that present every degree from the dark to what may be termed the lighter phase of color. The young birds in first plumage are generally lighter as a whole than the adults, and the under parts that are olive or cinnamon in adult birds are dirty whitish at this stage in the dozen or more individuals that have come under my observation.

***Rallus virginianus*.** VIRGINIA RAIL.—This does not seem a common species on the Gulf Coast, and my records about Tarpon Springs are but few, being made in the months of December, 1887, and February, 1888.

***Porzana carolina*.** SORA.—Though more common than the last, I have but few records of this species from Tarpon Springs, the earliest fall note being in the first week in October and the latest spring note March 29, 1887. Mr. Atkins finds the species not common at Key West "in the fall."

***Ionornis martinica*.** PURPLE GALLINULE.—About Tarpon Springs this species is not common but I have records of its occurrence in this vicinity. At points on the Coloosahatchie River it is common, resident, and breeds. A nest and four eggs from this region are before me, and were taken on May 10, 1887. I have also a series of birds collected in the same locality from the downy stage to the peculiar first plumage, which seems to be assumed, at the point in question, about the first week in July, and only lasts about six weeks to two months, when the second moult is completed.

This is one of the species that in its migrations is frequently blown out to sea in the Gulf and I have had several individuals brought to me by men from the sponging boats that fish from six to fifteen miles off the mouth of the Anclote River. These birds came on board during hard storms, generally in March, and being very much exhausted were easily captured.

***Gallinula galeata*.** FLORIDA GALLINULE.—Common resident, and breeds in suitable localities, at all points which I have visited on the Gulf Coast of Florida. The birds are, however, apparently much more abundant in winter than during the warmer months.

Fulica americana. AMERICAN COOT.—A common species, being abundant in winter, and congregating at times in the larger fresh water lakes in enormous flocks.

Himantopus mexicanus. BLACK-NECKED STILT.—The only notes I have of this species are two records of its capture by Mr. J. W. Atkins. Both birds were taken by him on Sanibel Island in 1886, one on March 26 and the other on May 2. Mr. Atkins has not observed the species at Key West.

Philohela minor. AMERICAN WOODCOCK.—The only note of the occurrence of the Woodcock that I have from this region is one observed at Panasoffkee Lake early in January, 1876.

Gallinago delicata. WILSON'S SNIFE.—A common winter resident at suitable localities throughout Florida. I have observed it in the neighborhood of Tarpon Springs as late as March 15. Mr. Atkins finds it wintering sparingly on the Island of Key West.

Macrorhamphus griseus. DOWITCHER.—A common winter resident, and abundant spring and fall migrant, on the Gulf Coast of Florida. I have notes of the occurrence of this species in the vicinity of Tarpon Springs every month during the year. The birds that remain during the summer are about equally divided as to plumage, some being in the gray, and some in the reddish brown plumage. Though not common, they are not at all rare during the months of June, July, and August, and are generally to be found in flocks of three to ten individuals. Those that I have taken during these months are equally divided as to sex, and on examination by dissection show no signs of breeding, but on the other hand do not appear to be either crippled or barren birds.

Mr. Atkins finds them at Key West, and on June 11 and 14, 1888, noted them as being common. He killed several on these days in gray plumage, and remarks that the "ovaries and testes showed no enlargement."

Macrorhamphus scolopaceus. LONG-BILLED DOWITCHER.—Of rather common occurrence near Tarpon Springs in the fall and early winter months, and I have also obtained specimens taken near Fort Meyers, on the Caloosahatchie River, in December.

Micropalama himantopus. STILT SANDPIPER.—Not observed in the vicinity of Tarpon Springs or at other points that I have visited, but I am indebted to Mr. J. W. Atkins for the record of the capture of one, a male, at Key West on November 1, 1888.

Tringa canutus. KNOT.—A common migrant, and a few winter, in the vicinity of Tarpon Springs. During the month of May they are abundant, going north, in flocks of from four or five to fifty. I noted them as common at Gasparilla on May 24-26 and 28, 1886, and on June 2 at John's Pass. I observed several small flocks. Almost without exception they were in full plumage.

Tringa maritima. PURPLE SANDPIPER.—The only record for Florida that I am aware of, is the specimen, No. 5070, in my collection, kindly presented to me by Mr. Atkins of Key West. (See Auk, Vol. V, p. 184). There is a mistake as to the capture of the bird as then recorded. It was

taken by Mr. Thomas Hart of Marco, at Gordon's Pass, Florida, November, 1, 1886. The bird in question is a female.

Tringa maculata. PECTORAL SANDPIPER.—The only records I have of this species have been kindly furnished me by Mr. J. W. Atkins of Key West. "Punta Rassa, Florida, taken on September 1, 1887." "Key West, Florida, seen, July 26, 1888." "They were not common at either place."

Tringa fuscicollis. WHITE-RUMPED SANDPIPER.—I have records of this species from the vicinity of Tarpon Springs in May and June but it does not seem common. Mr. J. W. Atkins took a female on June 11, 1888, at Key West, that was "emerging from winter plumage."

Tringa minutilla. LEAST SANDPIPER.—A common migrant and winter resident, and some remain during the summer on the Gulf Coast, as I have records of the species observed during June, July, and August of 1886. Mr. Atkins says in a recent letter to me "Peeps of this kind or the Semipalmated, seen at Key West on June 11, 1888. Again on July 28, and were common on August 20, 1888."

Tringa alpina pacifica. RED-BACKED SANDPIPER.—A common migrant and winter resident in the vicinity of Tarpon Springs. A few remain during the summer but not as commonly as *Macrorhamphus griseus*. I noted them as late as June 2, 1886, at John's Pass, migrating north in small flocks. Most of them had almost assumed full plumage. The height of the migration seems to be in the latter part of April and first week of May. Mr. Atkins has not observed this species at Key West.

Ereunetes pusillus. SEMIPALMATED SANDPIPER.—A common migrant and abundant winter resident. The same remarks that apply to *Tringa minutilla* as a summer resident species, hold good in regard to the bird in question. Mr. Atkins has also observed it in Key West in June, July, and August.

Ereunetes occidentalis. WESTERN SANDPIPER.—Not nearly so abundant as *Ereunetes pusillus*, but of regular occurrence in fall and winter on the Gulf Coast of Florida in the vicinity of Tarpon Springs.

Calidris arenaria. SANDERLING.—A rather common migrant, and a few winter. At Gasparilla Pass I observed the species migrating north in small flocks, of which some birds were still in immature plumage, as late as May 24, 1886. Mr. Atkins says he found it to be rare at Punta Rassa and he has only met with it once at Key West in the fall.

Limosa fedoa. MARBLED GODWIT.—The Marbled Godwit, though not an abundant species, is to be found on the Gulf Coast of Florida the year round, and probably breeds though I have no positive records. In winter the number of these birds is considerably augmented, and flocks of six to twenty and even more are frequently seen. Mr. Atkins found it at Punta Rassa rather commonly from April to August, 1886, but has no records of its occurrence at Key West.

Totanus melanoleucus. GREATER YELLOW-LEGS.—A rather uncommon migrant and winter resident in the vicinity of Tarpon Springs. Mr. Atkins says of it: "Not uncommon at Punta Rassa in winter and spring."

"Found at Key West on June 11, 1888 (one bird)." Common at Key West, August 20, 1888.

Totanus flavipes. YELLOW-LEGS. — A rather rare migrant about Tarpon Springs, and I have no winter records of it at that point. Mr. Atkins did not meet with the species at Punta Rassa, but at Key West, he saw one bird on July 16, several on the 20th of the same month, and on July 28 they were common. All these notes were made during the season of 1888.

Totanus solitarius. SOLITARY SANDPIPER. — A common spring and fall migrant about Tarpon Springs, appearing most commonly in September, March, and April. "Common at Key West, July 28, 1888."—J. W. Atkins.

Symphemia semipalmata. WILLET. — Common resident. Breeds in great numbers on Old Tampa Bay and at other points visited. The breeding season is at its height in the vicinity of Tarpon Springs by April 20. Mr. Atkins says that it is resident and breeds at Punta Rassa and that he finds it at Key West in the fall.

Symphemia semipalmata inornata. WESTERN WILLET.—In my former paper, noticing this subspecies (see Auk, Vol. V, p. 185), I thought that this was the commoner of the two forms of Willet in the winter months. I am now inclined to believe it much rarer than the *semipalmata* in winter and of only casual occurrence during the summer months, and do not believe that this form breeds on the Gulf Coast of Florida.

Bartramia longicauda. BARTRAMIAN SANDPIPER.—Mr. Atkins writes me that on October 3, 1888, he secured a female at Key West, which is the only time he has met with the species. I have no notes in regard to it.

Actitis macularia. SPOTTED SANDPIPER. — A common migrant about Tarpon Springs, appearing in late March and April abundantly, and again in September. The vicinity of mangrove islands appears a favorite resort for the species, where at low tide they may be seen feeding among the twisted net-work of roots, and as the tide rises they retire to some dead branch or limb where small companies of from four to ten may be frequently found *perched*, awaiting the ebb to resume their interrupted search for food.

Mr. Atkins found the species at both Punta Rassa and Key West all winter, and has notes from the latter place on July 28, 1888, when they were common. This indicates their breeding in the vicinity, though I know of no actual record.

Numenius longirostris. LONG-BILLED CURLEW. — Resident on the coast in the vicinity of Tarpon Springs, and doubtless breeds, though sparingly.

Mr. Atkins observed it at Punta Rassa throughout the year, and believes it breeds there. He has not met with it at Key West.

Charadrius squatarola. BLACK-BELLIED PLOVER.—A common migrant on the Gulf Coast, and some remain all winter, and a few throughout the summer months, at all the points I have visited or from which reliable notes have been obtained.

Flocks of varying size were observed by me in Charlotte Harbor during the month of May, 1886, and as late as the 28th of that month. These were all apparently migrating north and many of the birds were in almost full plumage.

Mr. W. S. Dickinson took an adult male at the mouth of the Anclote River on August 30, 1888, that was in almost full breeding plumage.

Mr. J. W. Atkins has kindly sent me records of a pair that remained at Key West during the entire summer of 1886, and were joined by a few others, presumably from the north, on August 8 of that year. He says further: "At Key West during 1888 on June 11 and 14 six or eight were noted each day in company with breeding Wilson's Plovers. They were seen again at Key West on July 26, and regularly after that date."

Charadrius dominicus. AMERICAN GOLDEN PLOVER.—The only record of this species is from Punta Rassa where, though not at all common, it was taken by Mr. Atkins.

Ægialitis vocifera. KILLDEER.—A rather common resident about Tarpon Springs, but more frequent in winter. A few breed. Mr. Atkins found it not common at Punta Rassa, but an abundant winter resident at Key West.

Ægialitis semipalmata. SEMIPALMATED PLOVER.—A common migrant and winter resident at points on the Gulf coast; not observed in summer. Mr. Atkins's notes from Punta Rassa and Key West are of similar import.

Ægialitis meloda. PIPING PLOVER.—Not as frequent as the last, but noted at the several points visited by me, and also by Mr. Atkins at Punta Rassa. It is apparently rare at Key West. I have no notes of its occurrence during the summer months, nor has Mr. Atkins observed it at that season.

Ægialitis wilsonia. WILSON'S PLOVER.—An abundant spring and fall migrant and summer resident in the vicinity of Tarpon Springs where it breeds very commonly. At this point and on Tampa Bay I have yet to meet with the bird in December and January, and do not think it occurs. It arrives here late in February and in March, and breeding begins in April and continues till late in July.

Mr. Atkins found it resident and breeding at Punta Rassa, but has only met with it at Key West in summer, where it does not seem as abundant as on the mainland. He secured eggs of the species at Key West on June 11 and 14, 1888.

Arenaria interpres. TURNSTONE.—A rather common migrant in the vicinity of Tarpon Springs. Observed as late as June 2, 1886, in the vicinity of John's Pass in small flocks apparently migrating north. I also found them common at all points in Charlotte Harbor in May of the same year.

Mr. Atkins says it is a common winter resident and late spring migrant at Punta Rassa. On August 2 and 12, 1886, he took Turnstones in almost full plumage at that point. On June 11 and 14, 1888, he found and secured a few of these birds at Key West. Of one taken on the latter date he remarks that "on dissecting the bird no signs of the approach of breeding were to be noticed."

Hæmatopus palliatus. AMERICAN OYSTER-CATCHER.—The only points on the Gulf coast where I have seen this species are Old Tampa Bay and the outer keys at Charlotte Harbor. At the latter point they were abundant in May, 1886, and were then mated and undoubtedly breeding. Mr. Atkins observed them rarely at Punta Rassa, and has not seen them at Key West.

(To be continued.)

RECORDS OF RARE BIRDS AT KEY WEST, FLORIDA, AND VICINITY, WITH A NOTE ON THE CAPTURE OF A DOVE (*GEO-TRYGON MONTANA*) NEW TO NORTH AMERICA.

BY W. E. D. SCOTT.

Stercorarius parasiticus. PARASITIC JAEGER.—A single young bird of the year was secured by Mr. Hart at Marco, Florida, in the winter of 1884 and kindly sent to me for inspection by Mr. Atkins.

Anas cyanoptera. CINNAMON TEAL. — Under date of November 12, 1888, Mr. J. W. Atkins of Key West writes me: "Did I give you the record of a Cinnamon Teal taken here on November 1, 1887? I have the skin in my collection, and on October 24 (this year) I examined another of the species in the possession of a boy, who had just shot it in a pond near the town [Key West]."

Melopelia leucoptera. WHITE-WINGED DOVE. — Mr. J. W. Atkins secured a specimen of this species at Key West on November 14, 1888. He kindly sent it to me, and not being certain as to its identity, it being moulting, I forwarded it to Mr. J. A. Allen who compared and fully identified it. The bird is a male. Mr. Atkins writes me: "The bird was shot by a young man on this island and purchased of him by me. He reports that a flock of three of this kind of bird had been seen in the locality where the one in question was secured, the day before the capture." This being the first Florida record of the species, is of especial interest.

Geotrygon montana. RUDDY QUAIL-DOVE. — Mr. Atkins writes me on December 10, 1888: "I will send you shortly the head of a Key West Quail-dove (*Geotrygon martinica*). The Dove was shot here (Key West) by a boy on December 8, 1888, and was brought by him to the telegraph office to show me. Unfortunately I was absent. When I returned, one of the office boys told me of the "red dove." Going in search I found the Dove had been sold with some Carolina Doves to a man near by. I arrived at his place to find that it had been picked with the others, and only suc-

ceeded in obtaining the head and some wing and tail feathers." The remains I forwarded to Mr. J. A. Allen for comparison and identification, and he pronounces it an undoubted specimen of *Geotrygon montana*, the Ruddy Quail-dove, and the first recorded for North America. I wish here to express my indebtedness to Mr. Allen for this and many other similar kindnesses. I wish also to thank Mr. Atkins who has kindly presented the remains of the Dove in question to me. It is No. 3210 in my catalogue.

Milvulus forficatus. SCISSOR-TAILED FLYCATCHER.—On December 10, 1888, Mr. J. W. Atkins saw five Scissor-tailed Flycatchers near the town of Key West, and secured two of them, a male and a female. He says "The birds seen to-day were quite shy and were taken at long range." This is, I believe, the second record for the island of Key West, and it can hardly be considered as accidental at that point.

THE CLAPPER RAILS OF THE UNITED STATES AND WEST INDIES COMPARED WITH *RALLUS* *LONGIROSTRIS* OF SOUTH AMERICA.

BY GEORGE B. SENNETT.

IN 'TABL. P. E.,' 1783, Boddaert described *Rallus longirostris*, based on 'Râle à long bec, de Cayenne,' Buff., 'Pl. Enl.,' 849.

In 1788 Gmelin described *Rallus crepitans* (S. N., Vol. I, pt. ii, p. 713) based on 'Clapper Rail, from New York' (Penn., Arct. Zool., II, 1781, No. 407).

In 1868 (Proc. Zool. Soc., p. 442) Messrs. Scater and Salvin give an admirable 'Synopsis of the American Rails.' In this synopsis the New York Rail (*crepitans*) is not separated from the Cayenne Rail (*longirostris*) but is made its synonym.

In 1874 Mr. Lawrence described *Rallus crassirostris* (Ann. Lyc. N. Y., Vol. X, Feb., 1874). Mr. Lawrence sent the Bahia specimen, which differed so much from the *crepitans* of our Atlantic Coast, to England and says, "on returning it, Mr. Scater wrote, 'is true *longirostris*, figured Pl. Enl. 849.'" Again Mr. Lawrence says, "I find it agrees with Buffon's plate (which is of reduced size) in the apparent color of the back, also in the form and stoutness of the bill"; and again, "my specimen differed so much from *crepitans*, as well as from all others, that I considered

it undescribed at the time, taking for a settled fact that *crepitans* and *longirostris* were the same; if the Bahia bird is to take the name of *longirostris*, it being certainly distinct from *crepitans*, the latter name must be restored to full specific rank."

Mr. Lawrence's Bahia bird is now in the possession of the American Museum of New York and is similar to a Cayenne *longirostris* in the National Museum of Washington, and to those in the collection of Messrs. Godman and Salvin.

In 'Bull. Nutt. Orn. Club,' July, 1880, Vol. V, p. 140, Mr. Ridgway makes *crepitans* a subspecies of *longirostris* along with two new varieties, viz., *caribæus* and *saturatus*, revising his *elegans* var. *obsoletus* (Am. Nat., 1874, p. 111) by raising it to the rank of a species, *Rallus obsoletus*. Mr. Ridgway's conclusions were pretty generally accepted by American ornithologists and the United States species were incorporated in the A. O. U. Check-List of 1886.

Since the papers above mentioned were written we have done more systematic and thorough work in field ornithology in the United States than had been previously accomplished. As a result of this field work an immense amount of material, including Clapper Rails, has been added to our collections, both public and private. No larger series of these wary birds has ever been brought to our notice from any special source than that collected by Mr. W. E. D. Scott at Tarpon Springs, Florida, from the fall of 1886 to the summer of 1888. During this time Mr. Scott collected more than one hundred and twenty specimens, old and young, taken in every month of the year. Of this large series all but a few are the new Rail which I very briefly described in 'The Auk' of July, 1888, p. 305, as *Rallus longirostris scottii*. Mr. Scott was on the point of working up this dark Rail when he learned that I intended to determine certain Texas examples of Rails, and he kindly sent me his material with the request that the types go to the American Museum of New York.

A more careful study of all the forms leads me to believe that any ornithologist familiar with the Rails of the United States can readily separate the fresh water or King Rails of the *elegans* group from the salt water or Clapper Rails of the *longirostris* group. Now, given a hundred or more examples of the various Clapper Rails of the United States and the West Indies indiscriminately mixed together, I think there would be no question

but that any ornithologist familiar with Rails would readily select three distinct and well marked species, *crepitans*, *obsoletus*, and *scottii*, all of which are different from the true *longirostris* of South America. Of this promiscuous collection a few might not so easily be determined, but are apparently divisible into three forms; one form is pale in color and is like true *longirostris* except that the bill, instead of being short and thick, is long and slender; the labels show that this form comes from the West Indies and Texas and is the subspecies *caribæus* of Ridgway. Another form is browner than *crepitans*, but not sooty or black like *scottii*; only three of these were taken in one locality in Louisiana in 1869 and were named by Mr. Henshaw in 1880 *Rallus longirostris saturatus*. Since the capture of these three brown birds by Mr. Henshaw, no large Rails other than *crepitans* have been taken along the whole northern coast of the Gulf of Mexico. The third form is from the Bahamas, with a bill short and straight which in stoutness is about midway between *caribæus* and *longirostris*. In color the faded and worn plumage of the only two specimens thus far taken is lighter than that of any Rail I have yet seen. The type was taken on a Key south of Andros Island, and was named *Rallus coryi* by Mr. C. J. Maynard, in 'Am. Ex. & Mart.,' Boston, January and February, 1887. Another bird which Mr. Cory says is just like the type, has been taken in the Bahamas. It remains to be seen whether this can be established as a well defined race; it varies from true *longirostris* less than any other form now known, and it seems to me can only be classed as a variety of *Rallus longirostris*.

It now appears that the conditions warrant a revision of the North American Clapper Rails. As the result of my investigations I here present the names of the various species and varieties, together with my reasons for such classification.

Rallus crepitans. Restored to the rank of species as being the common Atlantic and Gulf Coast form, being both by bill and coloration distinct from true *longirostris*, which has thus far been found only on the Atlantic coast of South America.

Rallus longirostris caribæus. In color these birds are like *R. longirostris*; the structure of the bill is however very different, since it is very long, very slender, and decidedly decurved. Five specimens were examined from the West Indies, and it seems to be the form most generally found there.

Two specimens in my collection from Texas, strange as it may seem, are referable only to this form; moreover, nothing like it has been taken in Florida, which lies almost in direct line between Texas and the West Indies. There is nothing in this country nor in England as yet to show the forms of Clapper Rail prevailing along the immense line of coast extending between the United States and Cayenne, South America. As it is not the habit of these birds to migrate over great expanses of land or water, it would indicate that the Texas *caribæus* found its way thither along the southern coast of the Gulf of Mexico; therefore it would be only reasonable to expect that we shall find this form along the entire Gulf coast of Mexico and the eastern coast of Central America.

Rallus crepitans saturatus. This brown form was taken in February, 1869, at the Rigolets, near Lake Ponchartrain, a few miles from New Orleans, and was named eleven years later. Three specimens are now extant, all taken at the same place. Two of them (the types), which were in Mr. Henshaw's collection, are now in the British Museum, and the third is in the collection of Mr. Wm. Brewster of Cambridge, Mass. All of them were sent to me for study and comparison. Since these birds were named, efforts have been made at various times to secure others along the Gulf coast of the Southern States, but thus far (with the exception of the pronounced *scottii* of the west coast of Florida) only *crepitans* has been found. I have commissioned a collector to go to the exact place where this variety was taken, and on that spot, at a similar time of the year to look for this variety; but at present writing no Rails referable to this variety have materialized. These three specimens of *saturatus* are wonderfully similar and are entitled to a subspecific classification. Up to the time of finding *scottii*, four immature birds from Charlotte Harbor, Florida, in the National Museum, were referred to this form, but they are exactly like the young of Mr. Scott's series from Tarpon Springs, Florida, and must be considered *scottii*, as no adult *saturatus* has yet been taken in Florida. The birds are brown, very brown, with the edgings more olive brown than gray. The striping on the upper parts, both in extent and color, are about intermediate between *crepitans* and *scottii*. Since late fall and winter specimens of *crepitans* from Georgia and Louisiana are darker than spring or summer birds of the same

locality, or even than winter specimens of Carolina residents, it is probable that *saturatus* is a local form of *crepitans*, the latter the prevailing form in Louisiana.

Rallus obsoletus. This is the Pacific Coast form of Clapper Rail and is larger than and quite distinct from any other. The dark cinnamon of its under parts caused it at first to be mistaken for a variety of the King Rail (*Rallus elegans*). No other large Rail is so olive on its upper parts, and the dark streaks on its back are very sharply defined. Its bill is stouter than that of any other form excepting *longirostris* of South America, but is longer and more decurved than that of the latter. *Obsoletus* does not show great individual variation, and is doubtless correctly placed.

Rallus scottii. Since naming this bird as a variety of *longirostris* in 'The Auk,' July, 1888, p. 305, I have received more specimens of the several forms of Rails. I have now no hesitancy in raising *scottii* to the rank of a full species. It is so black that it can at a glance be separated from all other Rails, and such numbers have been taken that it certainly can be considered common if not abundant. In all its specific characters it is the most remote from true *longirostris* of any form yet discovered. It is resident where found and shows less individual variation than any form I have seen.

ANALYSIS.

Rallus longirostris Bodd. Bill straight, short, stout, and square at base; upper parts brown in about equal parts with the grayish olive feather edgings; under parts pale with dull cinnamon on breast; axillars and flanks light brown, sometimes grayish brown. Average size: bill, 2; wing, 5.40; tarsus, 1.75 inches. *Habitat*.—Eastern coast of South America.

Rallus longirostris caribæus Ridg. Bill long, slender, decurved, and much compressed at base; colors same as in *R. longirostris*. Average size: bill, 2.40; wing, 5.75; tarsus, 1.85 inches. *Habitat*.—West Indies and Texas.

Rallus coryi Maynard. Bill short, straight, not so stout nor square as in *longirostris*, nor yet as slender as in *caribæus*; upper parts pale brown in about equal portions with the light olive gray edgings to feathers; under parts pale gray, washed on breast with dull cinnamon; axillars and flanks faded brown with rather broad white bars. Size of type: bill, 2.05; wing, 5.50; tarsus, 1.70 inches. *Habitat*.—Bahamas.

Rallus crepitans Gmel. Bill long, slender, compressed, and decurved; upper parts plumbeous gray, predominating over the brown or olive brown stripes; under parts have little rufous or cinnamon; axillars and

flanks dark gray, barred with white. Average size: bill, 2.34; wing, 5.75; tarsus, 1.90 inches. *Habitat*.—Atlantic and North Gulf Coasts; casually in Florida and Texas.

Rallus crepitans saturatus Hensh. Bill slender, compressed, and decurved; upper parts mostly rich brown edged with almost pure olive (in one instance with grayish olive); under parts dark gray with cinnamon breast. Average size: bill, 2.32; wing, 5.63; tarsus, 1.87 inches. *Habitat*.—Rigolets, close by Lake Pontchartrain, near New Orleans.

Rallus obsoletus Ridg. Bill long, slightly decurved, quite strong, and not compressed at base; color above grayish olive, sometimes olive, narrowly and sharply striped with very dark brown; under parts rich cinnamon; axillars and flanks grayish brown, barred with white. Average size: bill, 2.40; wing, 6.30; tarsus, 2.10 inches. *Habitat*.—Pacific Coast.

Rallus scottii Senn. Bill slender, decurved, and compressed; upper parts sooty brown or black edged slightly with olive gray; under parts dark ashy gray mixed more or less with cinnamon; axillars and flanks slate color, barred distinctly with white. Average size: bill, 2.32; wing, 5.60; tarsus, 1.85 inches. *Habitat*.—West Coast of Florida (Tarpon Springs and Charlotte Harbor).

COMMENT.

I think I have a greater number of specimens of this group of Rails than has heretofore been brought together, and I have spent much time during a year and a half past in studying and examining them. Boddaert's description of *longirostris* and Buffon's plate of the same agree with all the birds that have been received in England and the United States from the Atlantic Coast of South America, and do not apply to any other birds. The bill of *longirostris* differs not only in size but in shape from that of North American forms; instead of being compressed the lower mandible is broad and square where it joins the head, its greatest width being at the lower edge of the base. Moreover, it is very stout and straight, and notwithstanding its name, its bill is the shortest of any of the large Rails. Taking into account this peculiarly shaped bill, and also the color of the bird, I do not understand why Gmelin's New York *crepitans* should not at all times have been acknowledged as a distinct species.

I am indebted for generous loans of specimens to the National Museum, Washington; the American Museum, New York; Mr. W. E. D. Scott, Tarpon Springs, Fla.; Mr. H. W. Henshaw, Washington; Messrs. Salvin and Godman, London; Mr. Wm. Brewster, Cambridge; Mr. C. B. Cory, Boston; Dr. B. H. Warren, West Chester, Pa., to all of whom I express my sincere thanks.

RESTORATION OF AN AUDUBONIAN FORM OF
GEOTHLYPIS TRICHAS TO THE AMERICAN
AVIFAUNA.

BY E. M. HASBROUCK.

MORE than a year ago while comparing specimens of the genus *Geothlypis*, one in particular arrested my attention as being materially different from any in my collection, and from any I had seen. It is numbered 442 and was taken by myself at Big Lake George, Florida, March 18, 1886. I carried it to Mr. Ridgway who, after comparing it with the series in the Smithsonian, declared it different from anything he had seen, and probably a new race, but advised me to say nothing concerning it until I secured more of the same variety. In accordance with his counsel I visited Florida in December of the past year for the purpose of securing as many as possible, and although unable to reach the scene of the first capture, I was successful in finding the bird abundant in Putnam County in the vicinity of Palatka, and was fortunate in obtaining seven more; three males and four females, all of which (the males) were nearly exact counterparts of the type with the exception of one immature male referred to later. On reaching Washington I submitted the entire series of eight to Mr. Ridgway, and with the assistance of Dr. Stejneger, compared them a second time; we found them differing considerably from the true *trichas* in possessing the larger size and more extended yellow beneath of *occidentalis*, together with an extremely narrow and paler ashy band behind the mask, and from *occidentalis* by the paler yellow throat and less orange of *trichas*. Audubon (Orn. Biog., Vol. I, 1832, p. 124, pl. 24) describes an *immature* specimen of the Yellow-throat taken in Mississippi, to which he gives the name *Sylvia roscoe*, and afterwards refers it to *trichas*: the description tallies almost exactly with mine above mentioned, while specimens in the Smithsonian collection from the Gulf States and Mississippi Valley agree closely with mine, thus leaving little room for doubt that it is a valid race between *Geothlypis trichas* and *Geothlypis trichas occidentalis*. I therefore have the pleasure of restoring a long neglected form to the American fauna, giving to it the name *Geothlypis trichas roscoe* (Aud.).

Geothlypis trichas roscoe.—Male adult: above, including tail, dark olive-green tinged with a rich dark yellow, feathers in highly colored specimens being tipped with light brown; frontal shield of black reaching well up onto crown, covering entire face, with narrow stripe over eye and reaching far down on the neck; ashy stripe *exceedingly narrow* and pale. Underparts rich gamboge yellow, tinged with brown in winter specimens, and reaching well down to and including vent and under tail-coverts, but becoming lighter near median line; flanks of a rich chocolate brown varying in intensity with age. Female differing from *trichas* both in size and intensity of color. Length of wing (skin), 2.13; tail, .244; bill, .50; tarsus, .75 inch. Upper and lower mandible black; iris brown; tarsus and feet flesh color. Intermediate in habitat and characters between *trichas* and *occidentalis*, but combination of characters peculiar and constant over a very wide area.

Habitat: in summer Mississippi Valley, north to Wisconsin, Minnesota, etc.; in winter Gulf States including Florida.

The single 'chip' of this bird, uttered at intervals, while partaking of the general characters is louder and harsher, while the songs of those heard in March were unmistakably clearer and stronger than any yet ascribed to *trichas*.

RECENT LITERATURE.

Supplement to the A. O. U. Code of Nomenclature and Check-List of North American Birds.*—The Supplement to the A. O. U. Check-List of North American Birds, mentioned in the last number of 'The Auk' (Vol. VI, p. 81) as in preparation, has now been completed and issued, forming an octavo pamphlet of 23 pages, uniform in style and typography with the 'Code and Check-List.' As explained in the Preface, it consists "of the tenable species and subspecies, genera and subgenera, added since the publication of the Check-List, together with any necessary eliminations and valid changes in nomenclature made since the Check-List was issued The Supplement here presented records the ruling of the Committee on about one hundred distinct questions, involving additions to the Check-List or changes in its nomenclature. Besides this, the Committee con-

*Supplement | to the | Code of Nomenclature and Check-List | of | North American Birds | adopted by the American Ornithologists' Union | Prepared by | a Committee of the Union | — | New York | American Ornithologists' Union | 1889.—8vo, pp. 23.

sidered some twenty or thirty additional cases of similar character, in which the proposed changes were found untenable, or in which the material examined was not sufficient to determine the question of their validity; and its decision thereon may be thus considered as in the main negatively recorded in the following pages. All questions of this nature known to the Committee at the time of its meeting [in November, 1888] were acted upon." The matter is classified under three heads: I, Additions; II, Eliminations; III, Changes of Nomenclature.

The additions number 23 species and 43 subspecies, one genus and three subgenera. The eliminations are two species and one subspecies. The changes in nomenclature are three affecting genera, two affecting subgenera, fifteen affecting species, and two affecting subspecies.

The Committee to whom the work was assigned by the Union consists of Messrs. Allen, Brewster, Coues, Merriam and Ridgway. Mr. Ridgway acted as the Committee's secretary, to whom also fell the greater part of the work of preparing the manuscript for printing.

The interval covered by the Supplement is scarcely three years. As the foregoing statistics show, they have been years of remarkable activity in North American ornithology, during which exploration has been pushed with unprecedented vigor, yielding results far beyond the most sanguine expectations.—J. A. A.

The Abridged A. O. U. Check-List.*—Simultaneously with the publication of the 'Supplement,' the Union issues an Abridged Check-List of North American Birds, containing not only the species and subspecies of the old Check-List, but also the additions and the changes of nomenclature made in the Supplement, the additions being interpolated in their proper places. The Abridged Check-List "contains only the scientific names, English names, concordance and current numbers." The list of Fossil Birds contained in the original Check-List, however, has been omitted, and a list of introduced or 'Naturalized Species' has been added. This edition of the Check-List is thus not only abridged, but revised to date. It is printed on only one side of the paper, thus adapting it for use in labelling, or for the reception of notes or additions. The preparation of the manuscript for this edition was made by Dr. Merriam, at the request of the Committee; he also supervised the printing, and compiled the list of 'Naturalized Species,' to whom this latter task was especially assigned by the Committee.

Collation of the abridged edition with the original Check-List and Supplement shows an almost faultless correspondence, the only discrepancies of any importance being in the numeration, where 420 *c* in the abridged edition should be 420 *b*, and 519 *c* should be 519 *b*. The 'Hypothetical List,' however, has been renumbered, there having been here one elimination and two additions.—J. A. A.

*Check-List | of | North American Birds | According to the Canons of Nomenclature | of the | American Ornithologists' Union | — | Abridged Edition | Revised | — | Published by the American Ornithologists' Union | 1889.—8vo, pp. 71.

Warren's 'Birds of Pennsylvania.'*—The purpose of this book appears to be to enlighten the public, especially the farming communities, in Pennsylvania in regard to the birds that are to be found in the State, to awaken a desire for their protection upon economic grounds, and to stir up an interest in natural history among the people. It begins with a brief introduction chiefly devoted to explaining, with the aid of a plate, the technical terms used in the book. Then follows the body of the work in which one hundred and forty-two species are treated in systematic order. These include, as a rule, the commonest and the most interesting. Accidental stragglers and others that by their rarity or from other causes would be unlikely to come under the readers' notice, have been omitted for lack of room; the author informs us in the introduction that over two hundred and fifty pages of manuscript have been left out in order to bring the size of the book more nearly within the limits prescribed by the act of Legislature authorizing its publication.

Under the head of each species is given a short description in simple language. These "have in some instances been taken from 'Birds of North America,' by my late lamented friend, Prof. S. F. Baird; others have been compiled, in part, from the works of Dr. Elliott Coues and Robert Ridgway." This is followed by a statement of the habitat, borrowed from the A. O. U. Check-List. Then comes, in all but one or two cases, a biographical sketch which aims to be not merely instructive, but interesting as well, and in this it is usually remarkably successful. Dr. Warren has here supplemented his own experience by abundant extracts from the writings of Audubon, Nuttall, Wilson, Coues and others. Much attention is paid to the birds' preferences in regard to food, and the author's stomach examinations are given, often in tabular form. The whole space allotted to each species averages a page and a half. As might be expected, the Birds of Prey come in for their full share of mention, and a detailed account is given of the Pennsylvania 'Scalp Act' and the evidence that led to its repeal.

The descriptions of the species are supplemented by forty-nine chromolithograph plates, all, with exception of that of the House Sparrow, copied from Audubon, although we find no mention made of their source. Of course the execution is by no means equal to that of the originals, and we fear Mr. Audubon would hardly enjoy some trifling liberties the artist has occasionally taken, such as changing a bird's attitude or leaving out the fly it is trying to snatch. The printing of one plate upside down is probably not the artist's fault. The colors are not always printed with the care the subjects merit, but nevertheless the plates will well serve the purpose of stimulating the readers' interest, and Dr. Warren deserves our

*Report | on the | Birds of Pennsylvania. | With Special Reference to the Food-Habits, based | on over Three Thousand Stomach | Examinations. | By | B. H. Warren, M. D., | Ornithologist of the State Board of Agriculture; Associate Member of the American | Ornithologists' Union; Secretary of the Chester County (Pa.) | Academy of Arts and Sciences, etc. | Illustrated with fifty plates. | — | Harrisburg: | Edwin K. Meyers, State Printer. | 1888. 8vo pp. xii + 260.

thanks for giving us such a generous supply of plates that are on the whole so excellent.

The volume ends with an annotated 'List of the Birds of Pennsylvania' covering twenty-one pages and including 310 species, affording opportunity to briefly treat the species omitted from the body of the work. It is "based chiefly on observations made during the past ten years in Eastern Pennsylvania, especially in the Counties of Chester, Delaware and Lancaster," but it is in part compiled from manuscript notes of John Krider and H. B. Graves, the published writings of Ridgway, Coues, Gentry, Turnbull, Baird, Michener, Barnard and Pennock, and information received from Mr. Geo. B. Sennett. Some forty or fifty names are entered without annotations, though most of these have been already discussed in the previous pages. The list contains some new and interesting records and occasionally a statement that would interest one much more if supported by a detailed account of the facts or a citation of the authority.

The 'Report' was printed by direction of the Legislature of Pennsylvania for gratuitous distribution in the State, and the demand so far exceeded the supply that the edition of 6000 copies was quickly exhausted and, we are very glad to learn, the publication of a second edition of 10,000 copies, revised and enlarged, has been ordered. When this book has found its way into the schools and farmhouses throughout Pennsylvania the profit to the birds, to the farmers, and to ornithology, that ought to result, is incalculable. If other States would but follow such a good example, it would be an important step toward lifting the cloud of ignorance that hangs over the rural mind upon matters of natural history.—C. F. B.

Ridgway on New or Little-known American Birds.—In the 'Proceedings' of the U. S. National Museum and Boston Society of Natural History, Mr. Ridgway has recently published various papers on American birds, in the main relating to Mexican and South American species, as follows: (1) 'Remarks on *Catharus berlepschi* Lawr.*' indorsing the species and giving its synonymy. (2) 'Descriptions of some new Species and Subspecies of Birds from Middle America.'† These are *Catharus fumosus* from Costa Rica and Veragua (allied to *C. mexicanus* Bon.); *Mimus gracilis leucophæus*, from Cozumel; *Harporhynchus longirostris sennetti*, from Southern Texas, the larger, duller, more grayish Texan race being considered as subspecifically separable from the true *longirostris* of Mexico; *Campylorhynchus castaneus* from Guatemala and Honduras, hitherto referred to *C. capistratus*, which it much resembles; *Thryothorus rufalbus castanonotus* from "Nicaragua to Colombia"; *Microcerculus daulias*, from Costa Rica, and related to *M. philomela* ScL.; *Dendroornis lawrencei*, from Panama, and a subspecies *costaricensis* of this last, from Costa Rica. (3) 'Note on the Generic name *Uropsila* ScL. & Salv.,'‡ which

* Proc. U. S. Nat. Mus., 1887, p. 504. (Aug. 6, 1888.)

† Ibid., pp. 505-510. (Aug. 6, 1888.)

‡ Ibid., p. 511. (Aug. 6, 1888.)

proves to be preoccupied and *Hemiura* is proposed in its place, with the same type.

(4) 'Descriptions of new Species and Genera of Birds from the Lower Amazon,'* collected by Mr. C. B. Riker near Santarem during June and July, 1887. These number three genera and fifteen species, besides one from Guiana, described in a footnote. They are *Thryothorus herberti* Riker MS., *T. oyapocensis* (from Guiana), *Thryophilus tænioptera*, *Cyphorhinus griseolateralis*, *Colopteryx* (gen. nov., = *Colopterus* Cab., preoccupied) *inornatus*, *Ornithion napæum*, *Tyrannulus reguloides*, *Attila viridescens*, *Thamnophilus inornatus*, "*Heterocnemis* (?) *hypoleuca* sp. nov.?" *Dickrozona* (gen. nov.) *zononota*, *Phlogopsis bowmani* Riker MS., *Rhegmatorhina* (gen. nov.) *gymnops*, *Dendroornis fraterculus*, *Dendrocolaptes obsoletus*, and *Zenaida jessieæ* Riker MS. These, with three other species elsewhere described by Mr. Ridgway, formed indeed a rich harvest from a field by no means new.

(5) 'A Review of the Genus *Psittacula* of Brisson.'† This is an important monographic revision of the genus, giving full descriptions and the bibliography of the species, eleven in number, of which three species (*Psittacula insularis*, Tres Marias Islands; *P. exquisita*, Cartagena, Colombia; *P. deliciosa*, Santarem) and one subspecies (*P. passerina vivida* Bahia) are characterized as new.

(6) 'Catalogue of a collection of Birds made by Mr. Chas. H. Townsend on Islands in the Caribbean Sea and in Honduras.'‡ Thirteen species are recorded from Grand Cayman (including *Columbigallina passerina insularis* Towns., MS., subs. nov.); thirty from Swan Island (including *Contopus vicinus* and *Butorides saturatus*, spp. nov.); three from Ruatan Island; fifty-six from Truxillo, Honduras (*Thamnophilus intermedius*, *Centurus santacruzii pauper*, and *Eugyptila vinaceiventris* are characterized as new); and ninety-nine from Segovia River, Honduras, of which the following are regarded as new: *Pitylus poliogaster scapularis*, *Sturnella magna inexpectata*, *Thaluranian townsendi*, *Colinus, nigrogularis segoviensis*, *Porzana exilis vagans* and *Tigrisoma excellens*.

(7) 'Description of a new *Psaltiriparus* from Southern Arizona.'§ This is *Psaltiriparus santaritæ*, similar to *P. plumbeus*, but smaller, with the sides of the head paler, etc., from the Santa Rita Mountains, Arizona.

(8) 'Notes on some Type-specimens of American Troglodytidae in the Lafresnaye Collection.'|| This paper treats of the types of ten Lafresnaye species of the genus *Campylorhynchus*, four of *Thryothorus*, and one of *Troglodytes*. *C. brevirostris* is described as new "ex. Lafr., MS." Baird's "*Thryophilus rufalbus*, var. *poliopleura*" proves to be a "pure synonym" of *Thryothorus rufalbus* Lafr., while *Troglodytes brunnei-collis* Scl. proves to be identical with *T. tecellata* Lafr. & d'Orb. A

* Proc. U. S. Nat. Mus., pp. 516-528. (Aug. 6, 1888.)

† Ibid., pp. 520-548. (Aug. 6, 1888.)

‡ Ibid., pp. 572-597. (Aug. 6 to Sept. 19, 1888.)

§ Ibid., p. 697. (Oct. 12, 1888.)

|| Proc. Boston Soc. Nat. Hist., Vol. XXIII, pp. 383-388. (March, 1888.)

number of the names borne by the types seem never to have been published.—J. A. A.

Bendire on the Nests and Eggs of Rare Species of North American Birds.—In the 'Proceedings' of the U. S. National Museum, Captain C. E. Bendire has recently published two papers on the nest and eggs of several little known species of North American birds. The first treats of the California Black-capped Gnatcatcher,* describing its nest and eggs found by Mr. F. Stephens at San Bernardino, Cal. — the first thus far described. The second paper† describes the nests and eggs of several species, collected by Lieut. Harry C. Benson near Fort Huachuca, Southern Arizona. These are the Band-tailed Pigeon (*Columba fasciata*), the Zone-tailed Hawk (*Buteo abbreviatus*), the Aplomado Falcon (*Falco fusco-cærulescens*), Swainson's Hawk (*Buteo swainsoni*), the Arizona Jay (*Aphelocoma sieberii arizonæ*), the White-necked Raven (*Corvus cryptoleucus*), Stephens's Vireo (*Vireo huttoni stephensi*), and the Lead-colored Bush-tit (*Psaltiriparus plumbeus*).—J. A. A.

Lawrence on a New Species of American Bird.—In the 'Proceedings' of the U. S. National Museum Mr. George N. Lawrence has described‡ a new species of *Catharus* (*C. berlepschi*), from Ecuador, allied to *C. fuscater*.—J. A. A.

Stejneger on the Japanese Creepers.—Dr. Stejneger, in his 'Review of Japanese Birds,' has recently discussed the Creepers of the genus *Certhia*,§ of which he recognizes two forms, *C. familiaris* and *C. f. scandulaca*, which he treats at length with his usual discrimination and thoroughness.

Dr. Stejneger has also published a paper on the type specimen of *Gallinula eurizonoides* Lafr.,|| described as from "l'Inde," but which Dr. Stejneger thinks it pretty safe to assume came from the Philippine Archipelago. Its near Indian ally is accordingly named *Euryzona eurizonoides amauroptera* (Blyth).—J. A. A.

Beckham on the Birds of Southwestern Texas.¶—In a posthumous paper of over sixty pages the late Mr. Beckham has recorded his observations on the birds observed by him during December, 1886, and January,

*Description of the Nest and Eggs of the California Black-capped Gnatcatcher (*Poliottila californica* Brewster). Proc. U. S. Nat. Mus., 1887, pp. 549-550.

†Notes on a Collection of Birds' Nests and Eggs from Southern Arizona Territory. Ibid., pp. 551-558.

‡Description of a New Species of Bird of the genus *Catharus*, from Ecuador. Ibid., 1887, 503. (Aug. 6, 1888.)

§Review of Japanese Birds. VII.—The Creepers. Proc. U. S. Nat. Mus., 1887, pp. 606-611. (Sept. 19, 1888.)

||On the Type-specimen of *Euryzona eurizonoides* (Lafr.). Proc. Boston Soc. Nat. Hist. Vol. XXIII, pp. 461-464. (May, 1888.)

¶Observations on the Birds of Southwestern Texas. By Charles Wickliffe Beckham. Proc. U. S. Nat. Mus., 1887, pp. 633-696. (Sept. 19, 1888.)

February, and March, 1887, in Bexar, Bee, and Nueces Counties, Texas. The list includes 283 species, of which 226 were found in Bexar County. All are copiously annotated. In the first eleven pages he reviews the work of his predecessors in the same field, comparing their results with his own, and also describing the topographic and floral features of the region under consideration. He says: "At first it was my purpose to record only the results of my own observations, but upon reflection it seemed better to embody the notes of the other observers who had collected in the same localities, and thus present a pretty fair picture of the avifauna along what I believe to be an important line of faunal inosculation, if such a term be permissible." He thus quotes frequently from the observations of Dr. H. B. Butcher, Messrs. H. E. Dresser, N. C. Brown, G. B. Sennett, Dr. J. C. Merrill, and J. L. Hancock, whose papers are cited in the 'Bibliography,' with which the paper closes. He has thus not only added much original matter, but condensed in convenient form the scattered records of previous observers. Under *Colinus virginianus texanus* (p. 655), he gives at length his reasons for believing that *C. graysoni* will be found to intergrade with this form as well as with *C. ridgwayi*. At p. 686 he notes his interesting experience with the rare Golden-cheeked Warbler (*Dendroica chrysoparia*), and has many pleasant biographical notes on many of the lesser known species. This, it is sad to recall, was nearly Mr. Beckham's last work in ornithology, his death occurring even before the publication of the present paper (see Auk, V, p. 445).—J. A. A.

Minor Ornithological Publications.—'Forest and Stream,' Vols. XXVIII and XXIX contains the following notes and papers (Nos. 1287-1388):—

1287. *Food of Hawks and Owls.* 'Forest and Stream,' Vol. XXVIII, No. 1, Jan. 27, 1887, p. 3.—Report of the West Chester (Pa.) Microscopical Society, giving tabulated results of the examination of Hawks' and Owls' stomachs, and also a paper of the same nature by L. S. Foster; the whole forming a most important contribution to our knowledge of this subject.

1288. *The English Sparrow.* By J. L. Davison. *Ibid.*, No. 1, Jan. 27, p. 4.—Advising its extermination.

1289. *Michigan Winter Bird Notes.* By E. L. Mosely. *Ibid.*, No. 1, Jan. 27, p. 4.—Notes on six species.

1290. *The Terns of Muskeget Island.* Editorial. *Ibid.*, No. 2, Feb. 3, p. 23.—An officer placed on the island to prevent their slaughter by millinery collectors.

1291. *Midwinter Appearance of the Linnet (Carpodacus purpureus) at Halifax, N. S.* By J. Matthew Jones. *Ibid.*, No. 2, Feb. 3, p. 24.

1292. *A Duck's Homing.* From Rutland (Vt.) Herald. *Ibid.*, No. 2, Feb. 3, p. 24.

1293. *Snowy Owl.* By A. A. A. *Ibid.*, No. 2, Feb. 3, p. 24.—At North East, Erie Co., Pa.

1294. *Canadian Game and Fish Resorts.* By Ernest E. Thompson. *Ibid.*, No. 3, Feb. 10, p. 42.—Notes on Canadian game birds.

1295. *Florida Bird Notes.* By H. A. Kline. *Ibid.*, No. 3, Feb. 10, pp.

43, 44.—Contains nearly two columns and a half of interesting notes on "Heron, Egrets, and Spoonbills," as observed at St. Marks. See also *Ibid.*, Vol. XXVII, No. 25, Jan. 13, p. 484.

1296. *Hawks and Owls*. By Victor M. Haldeman. *Ibid.*, No. 3, Feb. 10, p. 44.—Mentions the action of the Pennsylvania State Board of Agriculture in urging a repeal of the 'scalp act' passed by that State. "Last year there were expended in bounties for scalps of animals about \$100,000, 60 per cent of which was paid for Hawks' and Owls' scalps."

1297. *The Terns of Matinicus Rock [Coast of Maine]*. By C. E. Cahoon. *Ibid.*, No. 3, Feb. 10, p. 44.—A denial of the accusation of Wm. G. Grant. (See *ibid.*, Vol. XXVII, No. 25, Jan. 13, p. 485.)

1298. *Short-eared Owls in Illinois*. By J. G. Henderson. *Ibid.*, No. 4, Feb. 17, p. 66.—"Quite plentiful . . . this winter" [1886-87] at Carrolton.

1299. *Robins and China Berries*. By Edward Jack. *Ibid.*, No. 4, Feb. 17, p. 66. See also *ibid.*, No. 7, Mch. 10, p. 129.

1300. *The Weight of Quail in the South*. By J. M. W. (Augusta, Ga.).—"Swamp birds" said to weigh two ounces more and to be darker than those inhabiting the uplands. See also *ibid.*, No. 8, Mch. 17, p. 153, No. 11, April 7, p. 226, and No. 13, April 21, p. 274.

1301. *Domesticating Ruffed Grouse*. By J. B. Battelle. *Ibid.*, No. 5, Feb. 24, pp. 83, 84.

1302. *Shore Bird Nomenclature*. By B. *Ibid.*, No. 5, Feb. 24, p. 84.

1303. *The Terns of Matinicus Rock*. By E. A. Batchelder, Commander U. S. N. *Ibid.*, No. 5, Feb. 24, p. 84.—Reply to C. E. Cahoon. See *ibid.*, No. 3, Feb. 10, p. 44.

1304. *Old-Time Natural History*. By Wm. Dutcher. *Ibid.*, No. 6, Mch. 3, p. 105.—Extracts, relating chiefly to mammals, from a 'History of Long Island . . . New York, 1839.'

1305. *Prairie Owls and Scorpions*. By Geo. H. Wyman. *Ibid.*, No. 6, Mch. 3, p. 106.—*Speotyto cunicularia hypogaea* stated to destroy scorpions 'by scores.'

1306. *The Hermit Thrush (Turdus [aonalaschkæ] pallasi) near Baltimore, Md., in Winter*. By Arthur Resler. *Ibid.*, No. 6, Mch. 3, p. 106.

1307. *Description of a new Plumed Partridge from Sonora. (Callipepla elegans bensoni.)* By Robert Ridgway. *Ibid.*, No. 6, Mch. 3, p. 106. (See also Proc. U. S. Nat. Museum, 1887, pp. 148-150, published July 2, 1887.)

1308. *Where do Meadow Larks Winter?* By L. *Ibid.*, No. 6, Mch. 3, p. 106.

1309. *Golden Eagle in Rhode Island*. By Newton Dexter. *Ibid.*, No. 6, Mch. 3, p. 106. Capture of a specimen at Westerly about Feb. 21.

1310. *The Nomenclature of Colors*. *Ibid.*, No. 7, Mch. 10, p. 128.—Review of R. Ridgway's 'A Nomenclature of Colors for Naturalists,' etc.

1311. *Is the Shrike a Mimic?* By A. H. G. *Ibid.*, No. 7, Mch. 10, p. 128.—On the song of *Lanius borealis*. See also note by J. L. Davison, *Ibid.*, No. 9, Mch. 24, p. 176.

1312. *Introduction of Blackcock into Newfoundland.* From the London Field. *Ibid.*, No. 7, Mch. 10, p. 131.
1313. *The Great Auk.* With cut. From the Audubon Magazine for March, 1887. *Ibid.*, No. 8, March 17, p. 152.—Sketch of its history.
1314. *Sea Bird Notes of the Grampus.* By Raymond L. Newcomb. *Ibid.*, No. 8, Mch. 17, pp. 152-153.—Two columns of interesting notes on Gulls, Petrels and Jaegers as observed off the New England coast (Martha's Vineyard to Bay of Fundy), from Sept. 23. to Oct. 14. *Megalestris skua* is twice recorded as 'seen.'
1315. *Eggs of Farallone Cormorant.* (*Phalacrocorax dilophus albociliatus* Ridgway.) By Oliver Davie. *Ibid.*, No. 8, Mch. 17, p. 153.
1316. *Mother Care.* By H. A. C. *Ibid.*, No. 9, Mch. 24, p. 176.—On the breeding habits of the 'Great Northern Diver' [?]. See also *ibid.*, No. 10, Mch. 31, p. 200.
1317. *Bird Notes from New Mexico.* By R. W. Shufeldt. *Ibid.*, No. 10, Mch. 31, p. 200. See also *ibid.*, No. 14, April 28, p. 297.
1318. *English Sparrow Destruction.* *Ibid.*, No. 11, April 7, p. 225.—Suggestions in regard to the English Sparrow. From the report of Dr. C. Hart Merriam, Ornithologist of the Department of Agriculture.
1319. *Erratic Migrations.* By W. B. A. *Ibid.*, No. 11, April 7, p. 225.—Bird notes from Fort Simpson, B. C.
1320. *Eggs of the Great Auk.* By F. C. Browne. *Ibid.*, No. 11, April 7, p. 225.—Sale of two eggs at auction, in Edinburgh about 1880, one bringing one hundred pounds, the other one hundred and two guineas. See also note by Chas. A. Bramble, *ibid.*, No. 12, April 14, p. 248.
1321. *Names of a Woodpecker.* By W. W. Colburn. *Ibid.*, No. 12, April 14, p. 248.—A list of thirty-six common names applied to *Colaptes auratus*.
1322. *English Sparrows.* By W. G. L. Tucker. *Ibid.*, No. 12, April 14, p. 248.—Citing instances of albinism and melanism.
1323. *Random Bird Notes [from Dansville, N. Y.]* By Uncas. *Ibid.*, No. 13, April 21, p. 274.
1324. *The Audubon Society.* Editorial. *Ibid.*, No. 15, May 5, p. 317.
1325. *Troubadours and Trouveres.* By Sarah D. Hobart. *Ibid.*, No. 15, May 5, p. 320.—Pleasantly written notes on certain Wisconsin birds.
1326. *Migration of the Fox Sparrow [at Lockport, N. Y.]* By J. L. Davison. *Ibid.*, No. 15, May 5, p. 320.
1327. *Mongrel or Hybrid Geese.* By Jay Beebe. *Ibid.*, No. 15, May 5, p. 320. (See also *ibid.*, No. 16, May 12, p. 345.)
1328. *A Stray Pelican [P. erythrorhynchos, at Oakland, Md.]* By Sportsman. *Ibid.*, No. 16, May 12, p. 345.
1329. *Sparrows.* Editorial. *Ibid.*, No. 17, May 19, p. 365.—On the action of the New York legislature in enacting a law making it penal to feed or harbor *Passer domesticus*.
1330. *Grouse in Captivity.* By J. B. Battelle. *Ibid.*, No. 17, May 19, p. 365. (See also *ibid.*, No. 19, June 2, p. 413.)
1331. *The Coming of the Birds.* By Edward Swift. *Ibid.*, No. 17, May 19, p. 367.—Notes on the spring migration, at Elmira, N. Y.

1332. *Domesticating Wood Ducks*. By M. M. Benschoter, M. D. *Ibid.*, No. 17, May 19, p. 367.
1333. *Evening Grosbeak near Buffalo*. By Chas. Linden. *Ibid.*, No. 17, May 19, p. 367.
1334. *American Museum of Natural History*. Editorial. *Ibid.*, No. 18, May 26, 1887, p. 389.—On "the new exhibit of birds in their homes recently put on exhibition."
1335. *Grouse and the Snow Crust*. By Edward Jack. *Ibid.*, No. 18, May 26, p. 392.
1336. *Breeding Wild Geese*. By M. M. Benschoter. *Ibid.*, No. 18, May 26, p. 392.—See also *ibid.*, No. 20, June 9, p. 432.
1337. *Wisconsin Song Bird Law*. *Ibid.*, No. 18, May 26, p. 392.—The law in full.
1338. *Florida Bird Notes*. By H. A. Kline. *Ibid.*, No. 19, June 2, p. 412. See also *ibid.*, No. 3, Feb. 10, p. 43.
1339. *Dusky Grouse Gossip*. By W. B. A. *Ibid.*, No. 20, June 9, p. 432.—On the case of "*Tetrao obscurus*."
1340. *Protecting the Birds*. Editorial. *Ibid.*, No. 23, June 30, p. 490.—On the work of the Audubon Society, which now has "a registered membership of 36,000."
1341. *Sparrows and Insects*. By Walter B. Barrows, Ass't Ornithologist, U. S. Dept. of Agriculture. *Ibid.*, No. 23, June 30, p. 490.
1342. *The Barbarous English Sparrow*. By F. C. Browne. *Ibid.*, No. 24, July 7, p. 513. See also note by J. L. Davison under same heading.
1343. *The Ways of Prairie Dogs*. By C. E. Bendire. *Ibid.*, No. 24, July 7, p. 513.—"The popular belief that the Prairie Dog, the Rattlesnake and the Burrowing Owl all live in harmony together in the same hole, is mere nonsense."
1344. *Domesticating Wildfowl*. By Fred Mather. *Ibid.*, No. 24, July 7, p. 513.
1345. *On the Tongue in the Humming Bird*. With cuts. By R. W. Shufeldt, C. M. Z. S., etc. *Ibid.*, No. 25, July 14, p. 531.
1346. *Robins feed their Young in Cages*. By Fred Mather. *Ibid.*, No. 25, July 14, p. 531.
1347. *Domesticating Ruffed Grouse*. By J. B. Battelle. *Ibid.*, No. 26, July 21, pp. 550, 551.
1348. *The English Skylark on Long Island, N. Y.* By L. S. Foster.—Seen, and heard singing, July 15, 1887, at Flatbush, L. I.
1349. *Hummingbird and Sparrow*. By Walter B. Barrows, Ass't. Ornithologist, U. S. Dep't of Agriculture. *Ibid.*, Vol. XXIX, No. 2, Aug. 4, p. 23.—Account of a battle between a Hummingbird and English Sparrow resulting, presumably, in the death of the latter. (See also note by O. O. S., *ibid.*, No. 5, Aug. 25, p. 86.)
1350. *Rail in Captivity*. By C. T. Rutgers. *Ibid.*, No. 2, Aug. 4, p. 23.—Capture and confinement of a Virginia Rail with four young at Trenton, N. J.

1351. *Male Quail on the Nest*. By T. E. Epes. *Ibid.*, No. 2, Aug. 4, p. 23.
1352. *The Pied Duck* (*Camptolaimus labradorius*). With cut. By R. W. Shufeldt, C. M. Z. S., etc. *Ibid.*, No. 4, Aug. 18, p. 64.—A brief account of its history.
1353. *Skeletons of the Great Auk*. From the 'Boston Herald.' *Ibid.*, No. 4, Aug. 18, p. 65. Discovery of its bones in the guano deposits on Funk Island, off the coast of Newfoundland.
1354. *Spencer F. Baird*. Obituary. *Ibid.*, No. 5, Aug. 25, p. 82.
1355. *A Chapter on Pterylography*. Three cuts. By R. W. Shufeldt, U. S. Army. *Ibid.*, No. 5, Aug. 25, pp. 84-85.
1356. *Unusual Nesting Sites*. From a paper read by Walter E. Bryant, before the California Academy of Sciences, Aug. 1, 1887. *Ibid.*, No. 5, Aug. 25, p. 86.—Notes on thirteen species.
1357. *Discovery of the Nest and Eggs of the Evening Grosbeak* (*Coccothraustes vespertina*). From a paper by Walter E. Bryant, read before the California Academy of Sciences, June 20, 1887. *Ibid.*, No. 5, Aug. 25, p. 86.
1358. *Confiding Quail*. By Walter B. Savary. *Ibid.*, No. 6, Sept. 1, p. 105.
1359. *Black Skimmer in New Jersey*. By I. N. D. Hason. *Ibid.*, No. 6, Sept. 1, p. 105.—Two seen at Atlantic City.
1360. *A Nebraska Collecting Trip*. By G. A. C. *Ibid.*, No. 7, Sept. 8, p. 123.—Account of one day's experience.
1361. *A Tame Kittiwake Gull*. From the 'Amateur Collector.' *Ibid.*, No. 7, Sept. 8, p. 124.—A very interesting account of the habits of a young Kittiwake Gull. Fresh water was refused, but salt water "it drank of eagerly."
1362. *Nighthawk and Swallow*. By E. A. Leopold. *Ibid.*, No. 8, Sept. 15, p. 144.
1363. *A Feathered Waif*. *Ibid.*, No. 8, Sept. 15, p. 144.—A young Sawwhet Owl (*Nyctala acadica*) captured on a vessel in Lake Superior.
1364. *Sparrow driven out by Worms*. By A. H. G. *Ibid.*, No. 9, Sept. 22, p. 164.
1365. *A new Subspecies of Petrel from Guadalupe Island*. From a paper by Walter E. Bryant, read before the California Academy of Sciences. *Ibid.*, No. 10, Sept. 29, p. 183.—Description of *Oceanodroma leucorhoa macrodactyla*.
1366. *A Coot Strikes a House*. By J. Wendell, Jr. *Ibid.*, No. 10, Sept. 29, p. 183.
1367. *Philo*. By Charles A. Bramble. *Ibid.*, No. 11, Oct. 6, p. 204.—Interesting account of a Woodcock in captivity.
1368. *A September Brood of Quail*. By Alfred A. Fraser. *Ibid.*, No. 11, Oct. 6, p. 205.—Newly hatched Quail on Long Island, Sept. 14.
1369. *Captive Grouse and Osprey*. By Edward Swift. *Ibid.*, No. 12, Oct. 13, p. 224.
1370. *The proposed Monument to Audubon*. Editorial. *Ibid.*, No. 14, Oct. 27, p. 261.

1371. *Hints on Sparrow Destruction*. By James T. Bell. *Ibid.*, No. 15, Nov. 3, p. 283.
1372. *Domesticating Wildfowl*. By Fred Mather. *Ibid.*, No. 18, Nov. 24, p. 343.
1373. *Grouse in Captivity*. By Jay Beebe. *Ibid.*, No. 19, Dec. 1, p. 363.
1374. *Melanerpes carolinus* (Linn.) in New Jersey. By L. S. Foster. *Ibid.*, No. 19, Dec. 1, p. 363.—A male taken at Keyport, Nov. 23, 1887.
1375. *Evening Grosbeak at Elmira, N. Y.* By Edward Swift. *Ibid.*, No. 20, Dec. 8, p. 383.—A male taken Nov. 25.
1376. *Sex Markings of Grouse*. By Edward Swift. *Ibid.*, No. 20, Dec. 8, p. 383.—The male said to possess a slightly longer tail and an orange colored spot on the "superciliary membrane."
1377. *A Queer Dick of a Woodcock*. By Nor'east. *Ibid.*, No. 21, Dec. 15, p. 403.—Interesting account of a Captive Woodcock.
1378. *Sex Markings in Grouse*. By Jay Beebe. *Ibid.*, No. 22, Dec. 22, p. 428.
1379. *Plumage of the Mallard Drake*. By T. H. Streets. *Ibid.*, No. 22, Dec. 22, p. 428.—"In the summer the drake looses his green head . . . and the tuft of curly feathers on the tail."
1380. *Oregon Chinese Pheasants*. From the 'Virginia City (Nev.) Chronicle.' *Ibid.*, No. 23, Dec. 29, p. 447.—"It is said that there are thousands of them in Willamette Valley."
1381. *Unusual Nesting Sites*. From a paper read Dec. 5, 1887, before the California Academy of Sciences, by Walter E. Bryant. *Ibid.*, No. 24, Dec. 25, p. 463.—Notes on eleven species.
1382. *Grouse and Mallard Plumage*. By Robert Ridgway. *Ibid.*, No. 24, Dec. 25, p. 463.—"Specimens [of Grouse] not unfrequently occur, which it would be impossible to determine the sex of without dissection." The male of several species of Ducks assumes the plumage of the female in the summer.
1383. *The Wood Duck in Winter*. By Fred Mather. *Ibid.*, No. 24, Dec. 25, p. 463.
1384. *Snowy Owls in 1886-7*. By H. A. Kline. *Ibid.*, No. 25, Jan. 12, p. 485.
1385. *Plumage of Mallard Drake*. By Thos. Johnson. *Ibid.*, No. 25, Jan. 12, p. 485.—"About 1000" Ducks were killed at Whitewater Lake, in southwestern Manitoba before October first, none of which were adult males. "But a sharp frost setting in on the third of October, one of my friends, Mr. Thomas London, killed during the forenoon of the following day, about fifty Mallards, the majority of them being 'green heads.'"
1386. *Wood Duck in Winter*. By Robert T. Morris. *Ibid.*, No. 25, Jan. 12, p. 485.—On Hackensack marshes.
1387. *A Taxidermist's Preparation*. By H. L. Samson. *Ibid.*, No. 25, Jan. 12, p. 485.—A preparation to preserve the color of the soft parts.

1388. *Food of the European Sparrow*. From papers read before the Biological Section of the Canadian Institute, by W. Brodie. *Ibid.*, No. 26, Jan. 19, p. 503.—An important paper, giving the results of the examinations of a large number of House Sparrows' stomachs.—F. M. C.

The 'American Naturalist,' Vols. XX-XXII, contains the following (Nos. 1389-1413).

1389. *The Relation of the Pectoral Muscles of Birds to the Power of Flight*. By Charles L. Edwards. *American Naturalist*, Vol. XX, No. 1, Jan. 1886, pp. 25-29.

1390. *The Torture of the Fish-hawk*. By I. Lancaster. *Ibid.*, No. 3, March, 1886, pp. 223-230, pl. XI.—Fish-hawks robbed by Frigate Birds.

1391. *Note on the Problem of Soaring Birds*. By J. E. Hendricks. *Ibid.*, No. 3, March, 1886, pp. 294-295.

1392. *The Mechanics of Soaring*. By I. Lancaster. *Ibid.*, No. 4, April, 1886, pp. 326-333.

1393. *The Soaring of Birds*. By I. Lancaster. *Ibid.*, No. 4, April, 1886, pp. 390-392.

1394. *Gravitation and the Soaring of Birds*. By I. Lancaster. *Ibid.*, No. 6, June, 1886, pp. 514-521.

1395. *Observations on Young Hummingbirds*. By H. S. Greenough. *Ibid.*, No. 6, June, 1886, pp. 528-532.

1396. *The Mechanics of Soaring*. By Prof. J. E. Hendricks. *Ibid.*, No. 6, June, 1886, pp. 532-534.

1397. *The Yellow-billed Magpie*. By Barton W. Evermann. *Ibid.*, No. 7, July, 1886, pp. 607-611.

1398. *Mechanics of Soaring*. By I. Lancaster. *Ibid.*, No. 7, July, 1886, pp. 653, 654.

1399. *Crow Roosts and Roosting Crows*. By Samuel W. Rhoads. *Ibid.*, No. 8, Aug., 1886, pp. 691-701; No. 9, Sept., 1886, pp. 777-787.

1400. *The Wings of Birds*. By I. Lancaster. *Ibid.*, No. 8, Aug., 1886, pp. 701-708.

1401. *Some Notes on Bird Migration*. By F. E. L. Beal. *Ibid.*, No. 9, Sept., 1886, pp. 817-819.—At Chicago.

1402. *Domestication of Wild Fowl*. By Fred. Mather. *Ibid.*, No. 9, Sept., 1886, pp. 820-821; *ibid.*, Vol. XXI, No. 8, Aug., 1887, p. 778.

1403. *Protracted Flight of a Golden Plover*. By H. E. Stockbridge. *Ibid.*, No. 10, Oct., 1886, pp. 898, 899.—The bird alighted on a ship in Lat. 37° N., Long. 156° W.

1404. *Birds killed by Electric Light Towers at Decatur, Ill.* By E. A. Gastman. *Ibid.*, No. 11, Nov., 1886, p. 981.

1405. *The Nesting of Collyrio ludovicianus*. By Sanborn Gove Tenney. *Ibid.*, Vol. XXI, No. 1, Jan., 1887, p. 90.—At Williamstown, Massachusetts.

1406. *Some Rare Indiana Birds*. By B. W. Evermann. *Ibid.*, No. 3, March, 1887, pp. 290, 291.

1407. *The Origin of a Small Race of Turkeys*. By John Dean Caton. *Ibid.*, No. 4, April, 1887, pp. 350-354.

1408. *The Relative Weight of the Brain of *Regulus satrapa* and *Spizella domestica* compared to that of Man.* By Joseph L. Hancock. *Ibid.*, No. 4, April, 1887, p. 389.
1409. *Birds Roosting in a Town.* By T. C. Palmer. *Ibid.*, No. 10, Oct., 1887, pp. 939, 940.
1410. *The Migration of the American Magpie to Eastern Nebraska, Twenty-five Years Ago.* By W. Edgar Taylor. *Ibid.*, No. 12, Dec., 1887, pp. 1122, 1123.
1411. *Missouri River Crow Roosts.* By W. Edgar Taylor. *Ibid.*, No. 12, Dec., 1887, pp. 1123, 1124.
1412. *On Cormorant Fishing in Japan.* By P. L. Jouy. *Ibid.*, Vol. XXII, No. 253, Jan., 1888, pp. 1-3.
1413. *The Relative Weight of the Brain to the Body in Birds.* [By J. L. Hancock.] *Ibid.*, No. 258, June, 1888, pp. 537-539.
- 'Science,' Vols. VII-XII, Jan. 1886-Jan. 1889, contains the following (Nos. 1414-1445.)
1414. *The English Sparrow.* By W. R. Shufeldt. 'Science,' Vol. VII, No. 152, Jan. 1, 1886, p. 14.
1415. *English Sparrows.* By C. I. and J. D. Hicks. *Ibid.*, No. 153, Jan. 8, 1886, pp. 35, 36.
1416. *The English Sparrow.* By Ernest Ingersoll. *Ibid.*, No. 155, Jan. 22, 1886, p. 80.
1417. *The Present Wholesale Destruction of Bird-Life in the United States.* By J. A. Allen. *Ibid.*, No. 160, Supplement, Feb. 26, 1886, pp. 191-195.
1418. *Destruction of Birds for Millinery Purposes.* [By J. A. Allen.] *Ibid.*, No. 160, Supplement, Feb. 26, 1886, pp. 196, 197.
1419. *Destruction of Bird Life in the Vicinity of New York.* By William Dutcher. *Ibid.*, No. 160, Supplement, Feb. 26, 1886, pp. 197-199.
1420. *Destruction of the Eggs of Birds for Food.* By Geo. B. Sennett. *Ibid.*, No. 160, Supplement, Feb. 26, 1886, pp. 199-201.
1421. *The Relation of Birds to Agriculture.* [By J. A. Allen.] *Ibid.*, No. 160, Supplement, Feb. 26, 1886, pp. 201, 202.
1422. *Bird Laws.* By J. A. Allen.] *Ibid.*, No. 160, Supplement, Feb. 26, 1886, pp. 202-204.
1423. *An Appeal to the Women of the Country in behalf of the Birds.* [By J. A. Allen.] *Ibid.*, No. 160, Supplement, Feb. 26, 1886, pp. 204-205.
1424. *The Destruction of Birds.* By F. H. H. and Amos W. Butler. *Ibid.*, No. 162, March 12, 1886, pp. 241, 242.
1425. *Bird-killing Sparrows.* By C. D. White. *Ibid.*, Vol. VIII, No. 180, July 16, 1886, p. 58.
1426. *Bird Destruction.* By J. A. Allen. *Ibid.*, No. 183, Aug. 6, 1886, pp. 118, 119.
1427. *Carnivorous Prairie Dogs—Carnivorous Orioles.* By W. O. Ayres. *Ibid.*, No. 185, Aug. 20, 1886, p. 165.
1428. *On the Flight of Birds.* By Harrison Allen. *Ibid.*, Vol. IX, No. 214, Mar. 11, 1887, p. 232.

1429. *Specific Variations in the Skeletons of Vertebrates.* By R. W. Shufeldt. *Ibid.*, No. 221, April 29, 1887, pp. 414-416.
1430. *The Maxillo-palatines of Tachycineta.* By Frederic A. Lucas. *Ibid.*, No. 223, May 13, 1887, pp. 461, 462. See also R. W. Shufeldt, *ibid.*, No. 226, June 3, 1887, p. 538, and Frederic A. Lucas, *ibid.*, Vol. X, No. 230, July 1, 1887, p. 12.
1431. *Another Muscle in Birds of Taxonomic Value.* By R. W. Shufeldt. *Ibid.*, No. 229, June 24, 1887, pp. 623, 624.
1432. *The Wanton Destruction of the Florida Heronries.* By R. W. Shufeldt. *Ibid.*, Vol. X, No. 233, July 22, 1887, pp. 47, 48.
1433. *Robin's Nest.* By C. H. Leete. *Ibid.*, p. 48.—Repeated repairing of old nests.
1434. *The Dermo-Tensor Patagii Muscle.* By R. W. Shufeldt. *Ibid.*, No. 234, July 29, 1887, p. 57.
1435. *Robin's Nest.* By J. A. Allen. *Ibid.*, p. 60.—Other cases similar to that narrated in No. 1433.
1436. *Pars Propatagialis musculi cucullaris.* By Leonhard Stejneger. *Ibid.*, No. 235, Aug. 5, 1887, pp. 70, 71.
1437. *Robin's Nest.* By H. M. Hill. *Ibid.*, p. 72.—Another case of repeated repairing of old nests.
1438. *Diagnosis of a New Species of Thrush (Turdus celænops sp. nov.) from Japan.* By Leonhard Stejneger. *Ibid.*, No. 238, Aug. 26, 1887, p. 108.
1439. *The Flight of Birds.* By J. S. Newberry. *Ibid.*, No. 254, Dec. 16, 1887, pp. 299, 300.
1440. *The Mechanism of the Flight of Birds.* By Elliott Coues. *Ibid.*, No. 256, Dec. 30, 1887, pp. 321-322.
1441. [*The flight of birds.*] By W. S. Strode. *Ibid.*, p. 322.
1442. *The Flight of Birds.* By J. S. Newberry and W. P. Trowbridge. *Ibid.*, Vol. XI, No. 257, Jan. 6, 1888, pp. 9, 10. See also Frederic A. Lucas, *ibid.*, No. 261, Feb. 3, 1888, pp. 58, 59.
1443. *Reappearance of our Native Birds.* Editorial. *Ibid.*, Vol. XII, No. 287, Aug. 3, 1888, p. 49.—Supposed unusual abundance of birds.
1444. *Our Native Birds.* By Bradford Torrey and Frank M. Chapman. *Ibid.*, No. 288, Aug. 10, 1888, p. 71.—Letters denying any increase in numbers of native birds. See also No. 1445.
1445. *Our Native Birds.* By Wm. T. Davis, R. B. Fulton, and L. N. Johnson. *Ibid.*, No. 290, Aug. 24, 1888, p. 96.—Letters affirming no increase in their numbers, noting a decrease, and referring the rumored increase to the fact of a storm during the spring migration having driven many small birds into city streets and other unusual places.
- 'The Quarterly Journal of the Boston Zoological Society,' whose publication ended with Vol. III, No. 1, contains the following (Nos. 1446-1459) in Vols. II and III. For Vol. I, see Bull. N. O. C., VIII, 233.
1446. *First Capture of Nauclerus forficatus in Massachusetts.* By Arthur P. Chadbourne. 'The Quarterly Journal of the Boston Zoölogical Society,' Vol. II, 1883, p. 16.

1447. *Birds around Boston during the Winter of 1882-3.* By Arthur P. Chadbourne. *Ibid.*, pp. 31, 32.
1448. *Occurrence of the Swamp and White-throated Sparrows at Cambridge, Mass., in Winter.* By Charles R. Lamb. *Ibid.*, p. 32.
1449. *Notes on Colaptes auratus, containing some Theories regarding Variation in Plumage.* By C. J. Maynard. *Ibid.*, pp. 33-36.
1450. *Occurrence of the Connecticut Warbler (Oporornis agilis) in Massachusetts in Spring.* By C. J. Maynard. *Ibid.*, pp. 43, 44.
1451. *Cuban Night Hawk (Chordeiles popetue minor) in Florida.* By C. J. Maynard. *Ibid.*, p. 44.
1452. *Descriptions of Three New Species of Birds from Santo Domingo.* By Charles B. Cory. *Ibid.*, pp. 45, 46.
1453. *Ornithological Notes from Minnesota.* By Foster H. Brackett. *Ibid.*, pp. 47-49; Vol. III, pp. 7-16.
1454. *Notes on New Brunswick Birds.* By Arthur P. Chadbourne. *Ibid.*, Vol. II, pp. 50-53.
1455. *Notes on the Differences between Cory's Shearwater, Puffinus borealis, and the Greater Shearwater, Puffinus major.* By C. J. Maynard. *Ibid.*, pp. 53, 55.
1456. *Dendroica palmarum palmarum in Belmont, Mass.* By C. R. Lamb. *Ibid.*, p. 55.
1457. *Occurrence of the White Heron (Herodias egretta) at Quincy, Mass.* By C. J. Maynard. *Ibid.*, pp. 55, 56.
1458. *Occurrence of the Pileated Woodpecker (Hylotomus pileatus) in Eastern Massachusetts.* By Foster H. Brackett. *Ibid.*, Vol. III, p. 17.
1459. *Capture of the Black-backed Three-toed Woodpecker (Picoides arcticus) at West Medford, Mass.* By F. W. Bridge. *Ibid.*, p. 17.
- 'Random Notes on Natural History' closed its existence with Vol. III (1886). For references to Vols. I and II, see Auk, III, 270-272. Vol. III contains the following (Nos. 1460-1486).
1460. *A Collecting Trip in the Magdalens.* By G. W. F[ield]. 'Random Notes on Natural History,' Vol. III, No. 1, Jan., 1886, pp. 3, 4.
1461. *Immaculate Eggs of Song Sparrows.* By J. N. Clark. *Ibid.*, No. 1, Jan., 1886, p. 8.
1462. [Winter Birds in Rhode Island.] [By F. T. Jencks.] *Ibid.*, No. 2, Feb., 1886, p. 9.
1463. *On the Breeding Habits of the Red-shouldered Hawk.* [By C. E. Doe.] *Ibid.*, No. 2, Feb., 1886, p. 11.
1464. [Winter Birds in Larimer Co., Colorado.] By W. G. S[mith]. *Ibid.*, No. 2, Feb., 1886, p. 13.
1465. [Nest of Rock Wren.] By Wm. G. Smith. *Ibid.*, No. 3, March, 1886, p. 17.
1466. [Turkey Buzzard.] By John H. Steele. *Ibid.*, No. 3, March, 1886, p. 19.
1467. [Sea Doves near Warwick, R. I.] [By J. M. Southwick.] *Ibid.*, No. 3, March, 1886, p. 23.

1468. [*Nest and Eggs of Myiadestes townsendii*.] By Wm. G. Smith, *Ibid.*, No. 4, April, 1886, p. 25.
1469. [*Spring Birds*. By F. T. Jencks.] *Ibid.*, No. 4, April, 1886, p. 27.
1470. [*Yelping a Gobbler*. By [A. B.] B[aker]. *Ibid.*, No. 5, May, 1886, p. 33.
1471. [*Strange Behavior of a Blue Jay*. By A. A. Hinkley. *Ibid.*, No. 5, May, 1886, pp. 33, 34.
1472. [*Bokemian Waxwings*. By Dean W. Park. *Ibid.*, No. 5, May, 1886, p. 34.
1473. [*Seasonable Notes*. [By F. T. Jencks.] *Ibid.*, No. 5, May, 1886, p. 37.
1474. [*Economic Ornithology*.] [By J. M. Southwick.] *Ibid.*, No. 6, June, 1886, pp. 41, 42.
1475. [*Myiadestes townsendii and Sialia sialis*.] By D. D. Stone. *Ibid.*, No. 6, June, 1886, p. 42.
1476. [*Seasonable Notes*. [By J. M. Southwick.] *Ibid.*, No. 6, June, 1886, p. 42.
1477. [*Yellow-crowned Night Heron near Tiverton, R. I.*] [By J. M. Southwick.] *Ibid.*, No. 7, July, 1886, p. 49.
1478. [*Notes from Colorado*.] By Wm. G. Smith. *Ibid.*, No. 9, Sept., 1886, p. 66, 67.
1479. [*Plant Lice, Lady Bugs, and Sparrows*. [By J. M. Southwick.] *Ibid.*, No. 10, Oct., 1886, pp. 76, 77.
1480. [*Tennessee Warbler in Rhode Island*. [By J. M. Southwick.] *Ibid.*, No. 10, Oct., 1886, p. 79.
1481. [*Purple Gallinule*. [By J. M. Southwick.] *Ibid.*, No. 10, Oct., 1886, p. 79.—[“This was the third capture, not the second as stated.”—J. M. Southwick, *in litt.*]
1482. [*Sitta Canadensis*. By Ellison A. Smyth, Jr. *Ibid.*, No. 11, Nov., 1886, p. 85.
1483. [*Barn Owl and Razor-billed Auk in Rhode Island*.] [By J. M. Southwick.] *Ibid.*, No. 11, Nov., 1886, p. 91.
1484. [*Ruddy Duck*. By Thos. W. Fraine. *Ibid.*, No. 12, Dec., 1886, p. 98.
1485. [*Orioles nesting*.] By John N. Clark. *Ibid.*, No. 12, Dec., 1886, p. 98.
1486. [*Myiarchus dominicensis at Charleston, S. C.*] By E[llison] A. S[myth, Jr.] *Ibid.*, No. 12, Dec., 1886, p. 99.—C. F. B.

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GENERAL NOTES.

Sterna paradisæa.—**A Correction.**—The specimens of Tern obtained by me in Cape Breton were carelessly referred to this species, and I have hitherto neglected making correction. The birds are all *S. hirundo* and my remarks in 'The Auk,' Jan., 1887, p. 14, apply to *hirundo*.—JONATHAN DWIGHT, JR., *New York City*.

The Wood Ibis in Indiana.—Since sending my paper on the birds of Carroll County, Indiana,* to 'The Auk,' I have learned of the occurrence of the Wood Ibis (*Tantalus loculator*) in that County.

On July 30, 1887, a specimen of this southern bird was shot by a Mr. Harmon at the 'Maple Swamp' mentioned in connection with the Great Blue Heron and the Prothonotary Warbler in the above-named paper. The specimen is now in the possession of Dr. O. A. J. Morrison, of Middle Fork, Indiana, where I saw it last December. I could not learn that any other specimens were seen with this one by Mr. Harmon, or that any others have ever been seen in that locality. This, so far as I have been able to learn, is the most northern Indiana record of this bird. Indeed, it has been seen but rarely in this State. The first Indiana reference seems to be that of Dr. Rufus Haymond in the 'Proceedings' of the Philadelphia Academy for 1856, p. 295, and again in the 'Indiana Geological Report' for 1869, p. 229. In these two publications Dr. Haymond mentions the occurrence of a large flock of Wood Ibises along the White-water River, near Brookville, Indiana, in August, 1855. He states that one of these was crippled and brought to him, and that he kept it as a pet for about six weeks. "In that time it became very tame, learned its name, and would come when called. We fed it upon living fish, which it would swallow with amazing rapidity, except catfish, which required labor and time to dispose of. It died from having eaten a mackerel which had been placed in a basin to soak." There is a skull in the possession of a lady near Brookville, Indiana, which Mr. Amos W. Butler tells me he has seen, and which he thinks was from a bird killed from the flock seen by Mr. Haymond in 1855.

The next definite record is that furnished by Dr. F. Stein of Mount Carmel, Illinois, who says he saw a single pair at 'Little Chain,' about ten miles west of Mount Vernon, Indiana, about 1874 or 1875.

Last September I saw a mounted specimen in a store window at Mount Vernon, Indiana, and, upon inquiry, learned that it was shot by a fisherman, Dexter Short, about October 30, 1887, at Hovey's Lake, Posey County, Indiana. There were about thirty-five or forty in the flock, "the first ever noticed in the County," according to the fisherman. They remained in the vicinity for four or five weeks and then disappeared.

*Auk, V, 344-351; VI, 22-30.

Several of them were killed, but I could learn of but the one that was preserved. It is now in the possession of Mr. Jno. C. Leffel of Mt. Vernon.

On September 11, 1888, while engaged for the U. S. Fish Commission in exploring the Wabash River, I had the good fortune to come upon a flock of nine Wood Ibises at Mackey's Ferry, ten miles west of Mount Vernon. They were sitting in the tops of two dead trees just across the river on the Illinois side, and remained there during the entire time of our stay at the Ferry,—from about 8 to 11 A. M.

In addition to these, I find the following general references to its occurrence in Indiana. An old hunter of this city (Terre Haute) in whom I have confidence tells me that his father shot a Wood Ibis several years ago from a flock of several at the Old Reservoir south of Terre Haute. From the description given by the hunter I am quite certain he was not mistaken.

Ridgway, in his catalogue of the birds of Illinois, says the Wood Ibis is a summer sojourner in the extreme south of the State, and an irregular summer visitant in the northern portion. And in a letter to me dated January 26, 1889, Mr. Ridgway says:— "I remember, years ago, seeing these birds occasionally, soaring in circles, high in air, above the Wabash River, at Mt. Carmel, the season being, I think, midsummer. Again, either in summer or early fall, I started a large flock which had been perching on the branches of a large dead sycamore tree overhanging the bank of White River Pond, just below the mouth of the White River, but did not get any specimens. The species, to my certain knowledge, occurs more or less plentifully, at times, at the Cypress Pond in the southwestern corner of Knox County, [Indiana], but owing to the circumstance that I am so little in that part of the country, I am unable to state whether they occur there regularly or not. I believe that the species formerly bred in small numbers in that portion of the Wabash Valley, though I have no distinct evidence upon which to base this supposition. Most of the birds now seen there, however, occur there late in summer (August and September), a considerable portion of them, perhaps a majority, being young birds of the year." Mr. Ridgway further says that he saw "at Mt. Carmel, the dried head of one that was killed by a hunter at the Cypress Pond in Knox County," and that he has been "reliably informed of others having been killed there."

I may add that inquiry among people in Posey, Gibson, and Knox Counties seems to show that it is a very rare bird there,—one that is not often seen except by those fellows who are wont to prow! around secluded ponds and wade cypress swamps, looking for the unusual among animate things.—B. W. EVERMANN, *State Normal School, Terre Haute, Indiana.*

Additional Notes on the Bittern.—Mr. Torrey's notes on the 'Booming of the Bittern' interested me very much, and while in most respects my observations agree closely with his, I hope to be able to throw light on some particulars.

For many years I had been familiar with the hiccougging noise which precedes the booming notes, and had often tried to find out how it was produced; but although many times able to get within a few yards of Bitterns, the grass and bushes among which they stood always prevented my seeing plainly. At last fortune gave me the long-desired opportunity. One day while quietly paddling my canoe up a crooked stream, on turning a short bend in the stream, I came in sight of a Bittern caught by the toe in a muskrat trap. As I was approaching him he commenced pumping, and by taking time and working cautiously I was able to draw the stern of the canoe within a paddle's length of him, where he allowed me to observe him as much as I chose. This was in April before the grass had begun to grow and he was in perfectly plain view. His motions in making the noise were those described in the article referred to, but the first noise was not made by snapping the beak. The bill was opened with every noise; but the sound, which resembled the retching of a seasick person, came from within, not from snapping the bill. The movements of the bird were almost exactly such as the bird might be expected to make if sick at the stomach and trying to vomit. When this noise was made there was not much distention of the throat, but when the pumping sound began the gullet was greatly enlarged at each noise. The idea that the breast is expanded, is erroneous, as the *breast* cannot be distended. This notion doubtless arises from the fact that the Bittern, like all the Heron family, has long plumes which overhang the breast and by the motion of the throat are raised with every expansion of the gullet. Between each fit of pumping the Bittern assumed its various well-known attitudes. How the different noises were produced I can no more tell than I can tell how a Dusky Grouse 'booms,' though I have seen them do it within a very few feet of me, and think they also open their bill with each noise.

I can fully corroborate all Mr. Torrey says of the fearlessness of the Bittern in allowing cars to pass him, as I once saw one near Sacramento stand in the tulés at the edge of the ditch and allow our train to pass within twenty feet of him. In this case the bird stood with his bill pointing directly upward, and doubtless trusted to his resemblance to the dry tulé stalks for escaping observation.

There is one point on which I should like information. How do Bitterns kill the frogs which they eat? Once in the spring of the year I took from a Bittern's gullet, where they lay contracted into the smallest possible space, three large-sized frogs, all perfectly dead, and none showing any mark of violence either by piercing or pinching. Did the bird kill the frogs first, or swallow them alive? If he killed them first, how could it be done without leaving some mark upon them? If, as it is often reported, frogs have been found in rock where they have been imbedded hundreds of years without air, how could they be killed by suffocation? Besides, if they lived only a few moments it would seem that they must tear the bird's gullet in their struggles to escape. I hope some one may be able to give information on this point.—MANLY HARDY, *Brewer, Maine.*

Tringa bairdii on Long Island Sound.—A female *Tringa bairdii* was shot at Stratford, Connecticut, November 3, 1888, by Mr. J. H. Averill of Bridgeport, who kindly presented it to me. It was on a salt meadow in company with four *Tringa maculata*. Having no specimens for comparison I sent the skin to Dr. C. H. Merriam, Dept. of Agriculture, who identified it as above.—C. K. AVERILL, JR., *Bridgeport, Connecticut*.

Note on the First Plumage of *Colinus ridgwayi*.—Mr. Herbert Brown of Tucson, Arizona, has kindly sent me for examination a specimen of *Colinus ridgwayi*, a young male, still partly in the first plumage. It was taken Oct. 10, 1888, near Tubal, seventy miles south of Tucson. The top of the head is blackish, with each feather narrowly bordered with ashy brown. The hind neck, sides of the neck, and jugulum are yellowish white, with each feather barred at the tip with black. The scapulars are brownish, each feather with a rather broad whitish shaft stripe, and barred with yellowish white and black, and the wing coverts have much the same pattern, but the barring is pale cinnamon and brown. The throat is pure white, with new black feathers appearing irregularly along the sides of the chin and upper throat. Breast pale brown, with light shaft stripes and faintly barred with blackish, passing into brownish white with more distinct bars on the upper abdomen. The new feathers along the sides of the breast and flanks are chestnut, tipped with a spot of clear white, which is bordered behind with a more or less V-shaped bar of deep black. The broad yellowish white superciliary stripes extend to the nostrils. On the whole the first plumage of *C. ridgwayi* much resembles that of *C. virginianus texensis*, but the ground color above is darker, and the bars on the jugulum are stronger and better defined, and the ground color more whitish.—J. A. ALLEN, *Am. Mus. Nat. Hist., New York City*.

Another Saw-whet Owl (*Nyctala acadica*) in the District of Columbia.—Mr. J. D. Figgins shot a male Saw-whet Owl at Capitol View Park, a short distance from Washington, on March 12, 1889. When discovered it was feeding on a Junco, and was surrounded by an angry lot of small birds.

Three other specimens of this species have been taken here, as follows: A female was taken at Washington by C. Drexler, Feb. 12, 1859, and presented to the National Museum (No. 12,044). Dr. Fisher called my attention to a description of this specimen in 'History of North American Birds,' Vol. III, p. 43. The Museum number was given as 120,044 but was a misprint for 12,044. A female Saw-whet Owl was captured in this city on November 1, 1878, and presented to the National Museum (No. 97,987) by Mr. Henry Marshall. Another was taken early in October, 1886, and recorded in 'The Auk,' Vol. IV, p. 161, by Mr. F. S. Webster.—CHARLES W. RICHMOND, *Washington, D. C.*

A Fishing Screech Owl.—I secured a Screech Owl Feb. 2, 1889, which

was caught in a steel trap, the latter having been set in a spring, where there were a number of small fish. When found it was dead, having been drowned, and its legs were more or less covered with fish scales. The trap was at least four or five inches below the surface of the water, which seems to show that the Owl must have plunged into the water in order to have got caught. This is the only instance in which I have known this species to enter the water for the purpose of securing fish.* — WILLARD E. TREAT, *East Hartford, Connecticut*.

Brewer's Blackbird near New Orleans.—I have in my possession a male Brewer's Blackbird (*Scolecophagus cyanocephalus*) in full plumage, shot a few miles from New Orleans on December 23, 1888. A small flock was seen, but only one was procured. — GUSTAVE KOHN, *New Orleans, Louisiana*.

The Chestnut-collared and Lapland Longspurs on Long Island, N. Y.—While hunting for Lapland Longspurs on February 16, my brother, J. H. Hendrickson, saw a bird which, on account of white feathers in its tail and generally dingy appearance, he thought was a Bay-winged Sparrow. He approached within five or six feet and hit it with a small stone, when it flew a short distance and he shot it. Upon examination I found it to be a Chestnut-collared Longspur (*Calcarius ornatus*). It was found near the end of a filled-in, sandy road extending about six hundred feet into a salt marsh, and was entirely alone, no other birds being found within some distance of it. Upon skinning the bird I found it to be in good condition, slightly fat. I could not determine the sex. Upon reporting the above to Mr. William Dutcher, he informed me that it was not only a new record for Long Island (as I had supposed), but was the second record for the Eastern United States, the other being one taken in Massachusetts in July, 1876 (*vide* Brewer, Bull. Nuttall Ornith. Club, Vol. II, p. 78), and as such it will no doubt prove interesting.

On the same day (Feb. 16) my brother found a flock of eleven Lapland Longspurs (*Calcarius lapponicus*), one of which he shot. When first seen they were by themselves, but when shot at became mixed with a flock of thirty Shore Larks which began to quarrel with them as soon as they alighted, evidently trying to drive them away. This made the Longspurs restless and no more were shot. Next day (Sunday) my brother and I, armed only with an opera glass, went to look for more Longspurs. When coming over the edge of a small hill I flushed a flock of about a dozen Shore Larks, and noticed as they flew straight away from me that one bird in the flock had a noticeably white tail, similar to that of the Chestnut-collared Longspur mentioned above. This flock flew a hundred yards or so and alighted among a number of large boulders, and although I examined the ground carefully from a distance of forty yards or so (as

[*For a similar case see Bull. Nuttall Ornith. Club, Vol II, p. 80.—ED.]

near as I was able to get) I could not find the bird with the white tail. Upon trying to approach closer they flew sidewise to me, so that I could not see the tail-feathers very well, and went too far for us to follow them. On top of the hill I found one Lapland Longspur and approached within about thirty feet of it, when it took wing and, when flying, was joined by two more of its species and a couple of Shore Larks. The Lapland Longspurs when flying with Shore Larks resemble the latter so closely that they can only be distinguished by their note, which is so different that no mistake can possibly be made.

On Feb. 18 my brother found a flock of about forty Shore Larks, containing a few Lapland Longspurs, two of which he shot. On the 20th a few Lapland Longspurs were seen with a flock of Shore Larks, but were so wild that they were given up after about three hours of persistent hunting. On Feb. 22, my brother, a friend, and myself were out and saw two Lapland Longspurs in a flock of forty or fifty Shore Larks. They were very wild and flushed out of range, but flew back past us, when I recognized one of the Longspurs by its call and shot it. We have seen none since the 22d, although we have been over the ground on which they were found several times.—W. F. HENDRICKSON, *Long Island City, N. Y.*

Breeding of *Habia ludoviciana* in Niagara County, New York.—Although I have collected and made observations of birds in this County for the past ten years, not until the past season have I found the Rose-breasted Grosbeak breeding here. On May 26, 1888, I found in the edge of a piece of woods a nest about five feet from the ground, containing one egg, I was unable to identify. Returning on the 30th, I was surprised to find a male of this species on the nest. I stood within three feet of him for some time, but he did not move, and not until my hand was within a foot of him did he show any signs of leaving. There were now four eggs in the nest, and I left them till later so as to see the female on the nest. But on returning two hours afterward, I again found the male sitting. I took only the nest and eggs and on emptying them I found that incubation had begun in two of them, and concluded the male must have begun sitting as soon as the first egg was laid.

On June 8, in another piece of woods one mile from the other nest, I found another nest containing two young birds about three days old, and one egg which looked so clean that I took it and on emptying it found that incubation had just commenced. This time the female was on the nest, and was more reluctant to leave than the male had been in the other case, and not till my hand had nearly closed over her did she conclude to do so. The nest was at about the same elevation as the first.

On June 23, but a few rods from the last nest, I found another, with the male on, containing one young bird not over one or two days old, and three eggs. I took one, in which incubation was found to have begun about three days before. On the morning of July 4, I found that the first young bird had left the nest, and on passing in the afternoon found it on a small bush and secured it. I had but little trouble in raising it, as it

would eat almost anything given it. I kept it till late in November, when I sent it to Mr. Hornaday of the U. S. National Museum, but it died on the way, probably from want of water.

From my observations of the species I conclude that the male does most of the sitting during the incubation of the eggs.—S. L. DAVISON, *Lockport, Niagara Co., N. Y.*

Calamospiza melanocorys on Long Island, N. Y.—On the 4th of September, 1888, I obtained, at Montauk Point, L. I., a specimen of this species. The bird was a young one in first plumage but full grown, and in rather ragged condition externally, though of average plumpness as to flesh. To Mr. Ridgway I am indebted for its identification.

The bird was found on the edge of a salt marsh near the beach, and, being not recognized, was shot on sight. During the latter part of August and the first days of September there was certainly no wind or storm heavy enough to blow the bird so far, and it seems altogether strange that it should have found its way to such a locality.—EVAN M. EVANS, *Princeton, N. J.*

Loggerhead Shrike at Bridgeport, Conn.—A Correction.—By some inadvertence in printing Mr. Averill's note in the January number of 'The Auk' (Vol. VI, p. 74) an incongruous combination of names was brought about, which it seems desirable to correct. The specimen of Shrike recorded was the true Loggerhead (*Lanius ludovicianus*), not *L. ludovicianus excubitoirides*, as accidentally printed.—EDS.

Helminthophila pinus, H. chrysoptera, H. leucobronchialis, and H. lawrencei in Connecticut in the Spring of 1888.—The fact that an unusually large number of the little known *H. leucobronchialis* and *H. lawrencei* were taken in Connecticut last spring, has led me to present a few notes on the relative abundance of the above-named species in different parts of the State. My thanks are due to Mr. Sage of Portland, Mr. Clark of Saybrook, Mr. Hoyt of Stamford, Mr. Averill of Bridgeport, Mr. Eames of Seymour, Mr. Treat of East Hartford, and Mr. Flint of New Haven, who have kindly placed their notes at my disposal.

Helminthophila pinus.—This species was found to be generally common along the coast except at Bridgeport. It arrived at Stamford May 15, and was common until the 17th, one was seen at Bridgeport May 10, another on the 18th, and a pair found breeding June 14. At New Haven the first was seen by Mr. Flint May 14, and the species was common from the 16th through the month, many remaining to breed. It was first seen at Saybrook May 9, and was tolerably common until the first of June. At Seymour, about twelve miles northward of New Haven, the first was seen on May 9, and the species was common by the 14th, many remaining to breed. No birds of this species were observed at East Hartford, which is in the north-central part of the State. One was taken at Portland, May 13, but it is very rare there.

Helminthophila chrysoptera.—A female was taken by Mr. Eames at Seymour on May 21. It seems to be a rare bird in most parts of the State. At Portland one was seen by Mr. Sage May 13, and five others May 30. None were reported along the coast.

Helminthophila leucobronchialis.—Mr. Eames at Seymour took a male on May 26, and observed five others at various dates, as reported by him in the October 'Auk' (Vol. V, p. 427). Mr. Flint saw one at New Haven May 15, and Mr. Clark one at Saybrook May 13. Mr. Sage took a male at Portland May 10, and saw another the same day.

Helminthophila lawrencei.—Three beautiful specimens of this bird were taken. Mr. Flint took a female at New Haven May 21, and Mr. Hoyt obtained a female at Stamford, May 23, and a male May 25. The yellow of the under parts of the female taken by Mr. Hoyt approaches the gamboge-yellow of *H. pinus*, and is much brighter than that on the corresponding parts of Mr. Flint's specimens.—LOUIS B. BISHOP, M. D., *New Haven, Conn.*

The Connecticut Warbler in Vermont.—On September 20, 1888, I took a male Connecticut Warbler (*Geothlypis agilis*) in the Green Mountains, two miles north of Pittsford, Vermont. This is, I believe, the first record of the species in Vermont.—FRANK H. HITCHCOCK, *Somerville, Massachusetts.*

Myiadestes townsendii Apparently Wintering in Wyoming.—On December 7, 1887, I was invited by a conductor on the Cheyenne and Northern Railway, to go out to the end of the road, which is about 125 miles north of Cheyenne, and take a shot at mountain sheep. For the last three miles the road winds along in the magnificent North Platte Cañon and looks, from the brow of the perpendicular precipices on either side, like two silver threads glistening in the sun, and the construction train appears like the toy train of the nursery. I had with me only my long range Sharp's rifle and was wholly unprepared to collect bird skins which were to be had here for the taking. On the walls of the cañon, especially in the less precipitous places, there flourishes a scattering growth of scrub cedar whose branches were well laden with the dark blue cedar berry.

Living, I believe, almost entirely upon these berries, for a winter diet, were countless thousands of Townsend's Solitaire (*Myiadestes townsendii*) and Robins (*Merula migratoria propinqua*). I saw also *Sitta canadensis* and several Long-crested Jays (*Cyanocitta s. macrolopha*). Both the Solitaires and Robins were acting like school children out for a holiday. They would chase one another hither and thither, now up to the brow of the cañon 500 or 600 feet above, now back and forth across the mirrored ice of the river below, and all the while singing and chattering like mad. It warms one's heart to enter such a vale of melody in cold December.

The temperature, prior to my visit, had been making strenuous efforts

to round up the zero point, and the ice on the river was quite thick and safe for crossing, though the water flows swiftly through the cañon. The only snow to be found lay in heavy banks on the north slopes. Personally I was unable to visit the cañon again during the winter, but my friend, the conductor, Mr. J. J. Duffey, kindly kept me posted up to February 7, 1888. On this date, he informed me a few days afterward, the birds were as abundant as when I saw them, two months before. Mr Duffey is thoroughly reliable, and I greatly regret his transfer to another division, as his departure on February 7 left the cañon without an observer. The severe weather being nearly over at this time, I am satisfied the birds remained in the cañon until spring. Does any member of the A. O. U. know of the bird's wintering in favored localities like the North Platte Cañon, or in this latitude ($42^{\circ}20'$ N.) anywhere? *Myiadestes townsendii* is hardly tolerably common during the migrating seasons, at Cheyenne.—FRANK BOND, *Cheyenne, Wyoming.*

Another Western Bird in South Carolina.—October 5, 1888, I procured, near the town of Chester, a Thrush which I believed to be *Turdus fuscescens salicicolus*. To place the identification beyond question, I submitted the specimen to Mr. Robert Ridgway, the original describer of the subspecies, soliciting his determination. I was promptly favored with a reply which corroborated the opinion formed by myself as stated above.—LEVERETT M. LOOMIS, *Chester, S. C.*

Bicknell's Thrush Breeding in Vermont.—Now that *Turdus alicia bicknelli* has been reported as a summer resident on Mount Graylock, Massachusetts, as well as in the Catskills and the White Mountains, it may not be amiss for me to enter a somewhat tardy record of its presence in the Green Mountains. In July, 1885, I passed four days (14th to 17th) on Mount Mansfield, and found Bicknell's Thrushes abundant in the evergreens about the hotel. From the piazza, one evening, I heard six singing at once, and during the day their calls were so persistent as to become almost a nuisance. After my return to Boston the clerk of the hotel sent me a young bird in the flesh, and the specimen is now in Mr. Brewster's collection.—BRADFORD TORREY, *Melrose Highlands, Massachusetts.*

Some Rare Rhode Island Birds.—The following species, considered rare for that portion of the country, have been observed by me in the vicinity of Newport, Rhode Island: Henslow's Sparrow (*Ammodramus henslowi*), abundant in September and October, 1888; Florida Gallinule (*Gallinula galeata*), a number seen in October, 1888; Black-throated Bunting (*Spiza americana*), one specimen, September, 1888; Red Phalarope (*Crymophilus fulicarius*), one specimen, Oct. 11, 1888.—WIRT ROBINSON, *2d. Lieut., 4th Artillery, Fort Adams, R. I.*

Some Rare Virginia Birds.—On November 12, 1881, whilst hunting in Chesterfield Co., Virginia (the south side of James River), I observed

among a large straggling flock of Horned Larks, what I thought was an albino, and after a tedious pursuit over ploughed fields, I succeeded in securing the bird which proved to be a Snow Bunting (*Plectrophenax nivalis*). This was the only one in the flock and the only one that I have ever seen in Virginia. The day was extremely disagreeable, with drizzling rain and sleet, and very cold.

The following are some birds which I have observed, and which by some authorities are not ascribed to that section of the country, or else are considered as stragglers:

Chen hyperboreus. SNOW GOOSE.—One specimen, winter of 1877.

Nyctea nyctea. SNOWY OWL.—One specimen, winter of 1877, Buckingham Co.

Ægialitis wilsonia. WILSON'S PLOVER.—One shot on a sand bar in James River, Nelson Co.; it was in company with Spotted and Solitary Sandpipers and Killdeer, August, 1887.

Protonotaria citrea. PROTHONOTARY WARBLER.—One seen in King William Co., April 29, 1879.

Dendroica dominica. YELLOW-THROATED WARBLER.—Numbers seen in May and June in different portions of the State.

Lanius ludovicianus. LOGGERHEAD SHRIKE.—Numbers seen; resident; more seen in December than in any other month. — WIRT ROBINSON, 2d Lieut.. 4th Artillery, Fort Adams, R. I.

Costal Variations in Birds.—Dr. Shufeldt's valuable paper 'On the Affinities of *Aphriza virgata*' contains the following passage. "Then again it is pretty well agreed that when we come to define the line between cervical and dorsal divisions of the column, we look chiefly to the ribs for assistance; yet these are by no means always to be relied upon; as sometimes in the same species, an additional pair may remain free at the further end of the cervical region, or an additional pair (always at the anterior part of the dorsal division) may connect with the sternum by a pair of hæmapophyses."

In 'The Auk' for July, 1888, allusion was made to the fact that it was by no means unusual for the Great Auk to possess an extra (ninth) pair of ribs, these being attached to the second 'sacral' vertebra, and subsequent examination shows this additional pair of ribs to have been present in no less than twenty-three, out of one hundred and forty-four sacra, pretty nearly one out of every six.

It is extremely difficult to say whether or no extra, free ribs were, or were not, occasionally present in the cervical region, from the fact that series of consecutive vertebræ cannot be obtained, but there is little doubt but that this was the case, although no twelfth vertebra bearing a costal facet has yet been noticed.

The question of the attachment of extra ribs to the sternum can be decided by that bone only, and unfortunately sterna of the Great Auk are much scarcer than almost any other bone. Still thirty sterna are available, and of this number twenty-three have seven pairs of costal facets, while

six have eight pairs. Of these six four have the extra pair of costal articulations at the posterior end of the series while only two have the additional pair at the anterior extremity of the sternum. So it would seem that the chances of finding an extra pair of ribs connected with the sternum at the posterior end of the series are twice as great as of finding an extra pair so attached to the anterior portion of the sternum.

A portion of the definition of the super-family *Micropodoidea* was accidentally omitted from my paper in the January Auk. This is, that of the six pairs of ribs all, save the first, articulate with the margin of the sternum proper and not with the costal process. This seems to be a rather important character, as among the highly specialized Passeres the ribs articulate exclusively with the costal process, while in more generalized forms, such as the water birds, the ribs articulate with the costal margin of the sternum.—F. A. LUCAS, *Washington, D. C.*

SCIENTIFIC SOCIETIES.

Linnæan Society of New York.

THE Society has issued no regular publications since August, 1884, when Vol. II of the 'Transactions' was published. Many papers read before the Society have been printed in 'The Auk,' 'Forest and Stream, and elsewhere. The following is a résumé of the Proceedings for the official year 1888-89.

April 13, 1888.—Mr. Frank M. Chapman, Vice-President, in the chair. Mr. L. S. Foster presented a paper giving a chronological sketch of the life of John James Audubon.

Mr. William Dutcher reported the capture of a Wilson's Plover (*Ægialitis wilsonia*) several years ago on Long Island. He read a letter from Mr. George Lane, an intelligent and observant gunner from the same locality, stating that about two weeks ago he had seen a bunch of these birds bound east.

Mr. Chapman spoke of the immense size of the flocks of Shore-birds seen on the west coast of Florida, particularly one of Knots (*Tringa canutus*), which were very tame.

A number of specimens of Shore-birds were exhibited by Mr. Jonathan Dwight, Jr.

May, 11, 1888.—Mr. Newbold T. Lawrence, Treasurer, in the chair. An invitation was received from the Linnæan Society of London to attend its centenary the present month.

Mr. L. S. Foster read 'Notes upon the migrating birds of the spring of 1888 as observed near Van Cortlandt, N. Y., and at Woodside, Long Island.'

A discussion of the effects of the 'blizzard' of March 12 of the present year upon avian life developed evidence as to the extensive destruction of English Sparrows (*Passer domesticus*) in this vicinity. Many of these sought the protection of out-buildings and henneries, two being actually found the next morning under a hen. Many perished from lack of food and the severe cold. In New Jersey great numbers of other species sought refuge in sheltered ravines. On Staten Island a Blue Jay (*Cyanocitta cristata*) was seen to drop dead from a tree, and near Lawrenceburg, Long Island, a Seaside Finch (*Ammodramus maritimus*) was found dead on March 12, this date being also an early record for this species.

Dr. C. Slover Allen instanced the death of many Bank Swallows (*Clivicola riparia*) after a three days' storm at Grand Menan. He also exhibited two nestlings of the Black Duck (*Anas obscura*) and fragments of one of the eggs, showing the perforated line around the larger end made by the young bird for escaping. This line is always made to the right.

October 12, 1888.—Mr. Frank M. Chapman, Vice-President, in the chair.

Mr. L. S. Foster read a list of birds noted this summer at Kiskatom, Greene Co., N. Y.

Mr. Ernest E. Thompson stated that he had heard the following birds singing throughout the night, viz.: the Golden-crowned Thrush (*Seiurus aurocapillus*), the Chipping Sparrow (*Spizella socialis*), and the Song Sparrow (*Melospiza fasciata*), as well as most of the common songsters. Mr. Thompson also remarked upon the effect of wind in repressing the songs of birds.

Mr. William Dutcher remarked that contrary to the usual published statements, he believes that Wilson's Petrel (*Oceanites oceanicus*) is the common one off our coast, as the majority of Long Island records are of this species. They were common at Little Gull Island in August, 1888.

November 30, 1888.—Mr. George B. Sennett, President, in the chair.

Mr. Frank M. Chapman read a paper entitled 'Notes on the Birds of Aiken, S. C.,' based on observations made there in November, 1887. Fifty-seven species were noted, among them a flock of fifty Crossbills, probably the third record for the State, and a single *Vireo solitarius alticola*, the second record for the State (see Auk, July, 1888, p. 324). About nine tenths of the birds seen were Sparrows and nine tenths of these *Spizella socialis*. He learned that a Mockingbird (*Mimus polyglottos*) had been observed to herald the approach of each shock of the memorable South Carolina earthquake by peculiar twitterings several moments before the rumble became audible. The English Sparrows left Aiken in a body after the earthquake.

A letter from Mr. William M. Wood of San Francisco spoke of the great number of Sea-birds that are washed ashore dead on the Pacific coast after a storm.

Mr. George B. Sennett said that Mr. Paul Babcock of New Jersey had found in his chicken coop during 'the blizzard' of last March an immense number of birds, estimated at fully twenty-five hundred, that had taken refuge there. Of these nearly one half were Bluebirds (*Sialia sialis*),

the remainder being English Sparrows. Mr. Sennett spoke also of having obtained at Erie, Pa., a few birds interesting as found in that locality. Among them a Caspian Tern (*Sterna tschegrava*); Horned Larks (*Otocoris alpestris praticola*), breeding; Shrikes (*Lanius ludovicianus*), breeding, and Grasshopper Sparrows (*Ammodramus savannarum passerinus*), breeding.

Mr. John N. Drake mentioned finding parasites resembling grains of rice among the feathers of eight specimens of Red-headed Woodpecker (*Melanerpes erythrocephalus*) taken by him in Sullivan Co., N. Y., last summer.

December 7, 1888.—Mr. George B. Sennett, President, in the chair.

Mr. Frank M. Chapman presented a paper entitled 'Notes on the Mnioiltidæ of Englewood, New Jersey.' *Dendroica discolor* is the only species lacking of the thirty-two which naturally should be found there. *Dendroica tigrina* and *Geothlypis philadelphia* have been taken each once; *Dendroica vigorsii* and *Dendroica castanea* each twice. The three *Helminthophila leucobronchialis* captured have been recorded in 'The Auk.' Twelve species are summer residents. Careful observations made upon *Geothlypis formosa*, a rather uncommon species at Englewood, show it to be a bird of peculiar song habits. A male was watched for several hours and during this period he was never silent more than three quarters of a minute at a time, uttering his marked five, six, or seven rapid notes every twelve seconds with wonderful regularity. This was early in June, 1886. A week later the same bird was in his usual haunts; but at a later visit he was doubtless oppressed by family cares, and sang very little. The nest with young of another pair of these birds was found in a bush near the ground by Mr. Chapman and Mr. C. B. Riker and was exhibited. Of special note is the capture of a breeding female *Helminthophila ruficapilla* on June 16. It was not known to nest so far south. Commenting upon this paper Mr. Dutcher said that *Dendroica discolor* was a common bird on the north shore of Long Island; *Dendroica vigorsii* fairly common there and restricted to the pines.

There was some discussion about ants annoying birds, but whether they caused the birds to desert their nests and then attacked their eggs and young or only attacked them after they had been deserted, was not demonstrated.

Mr. Foster spoke of a "barrel-ful" of birds killed by striking the Statue of Liberty on Bedloe's Island, New York Harbor, the night of October 8, 1888. He saw but a small portion of them.

Dr. C. Slover Allen showed photographs of the nest of a Purple Gallinule (*Tringoides martinica*) and its surroundings taken by him at Lake Harris, Florida.

December 21, 1888.—Mr. George B. Sennett, President, in the chair.

Mr. J. A. Allen spoke upon the Tyrannidæ and exhibited numerous specimens, largely from South America and the West Indies. This group is a very difficult one to study and its literature is scattered and unsatisfactory, although Sclater's 'Catalogue' of the family, recently issued, is in

most respects excellent. There are upwards of four hundred species, which Mr. Sclater divides into four sub-families, as follows; 1, Tæniopterinae; 2, Platyrhynchinae; 3, Elaineinae; 4, Tyranninae. Specimens illustrating the great variation in the appearance of the Flycatchers were shown and their peculiarities and relation to one another explained by Mr. Allen. Some of Tæniopterinae resemble Thrushes, Wagtails, and some of the Wood Warblers, while some of the Elaineinae show wonderful variation in the length of wing of the same species, and also in the form and size of the bill. Why Mr. Sclater has removed *Sayornis phæbe* from among its relations, *S. nigricans* and *S. sayi*, among the Tæniopterinae, and placed it in a genus by itself among the Tyranninae, is not clear to American students.

January 4, 1889.—Mr. George B. Sennett, President, in the chair.

Mr. Frank M. Chapman read a paper entitled 'Remarks on the Northern Limit of the Carolinian Fauna on the Atlantic Coast.' Selecting nine species representative of Carolinian birds regularly occurring in or near the valley of the Hudson, the various northern records of these species were taken as a basis for some generalizations fully supported by the facts. The species selected were: 1, *Empidonax acadicus*; 2, *Corvus ossifragus*; 3, *Stelgidopteryx serripennis*; 4, *Helmitherus virmivorus*; 5, *Helmithophila pinus*; 6, *Geothlypis formosa*; 7, *Icteria virens*; 8, *Seiurus motacilla*; 9, *Sylvania mitrata*. One of them, *Seiurus motacilla*, occurs as far up the Hudson as Albany, while most of the others have not been noted beyond Sing Sing. Most of them are found to be more or less common in Connecticut, while on Long Island they are with a few exceptions rare; thus indicating that while the Hudson Valley and southern Connecticut are distinctly tinged with the Carolinian fauna, Long Island has but little claim to such relationship. Mr. William Dutcher's evidence on this point supported Mr. Chapman's remarks, which were freely discussed by members of the society. Dr. L. B. Bishop supplied information bearing upon Carolinian species in Connecticut. He also spoke of a specimen of *Ammodramus princeps* taken in Connecticut ten miles from the sea.

Mr. Dutcher spoke of the great scarcity of birds this winter as noticed by his correspondents on Long Island.

Mr. Chapman knew of several *Tachycineta bicolor* seen and killed by a gunner near Englewood on December 31, about 1881. The day was warm. He referred to the habit this species has of feeding upon bayberries. *Dendroica coronata* also feeds upon them, and last winter, when the berries were abundant, this species was seen by him throughout the whole season independent of the weather, while this year none were to be found, and on examining the locality frequented last year by the birds he noticed that the crop of berries was small and the berries themselves bad. From this he was led to infer that the past unusually wet season may have rotted the seeds of the weeds upon which winter birds largely feed, and that this would account for their scarcity now.

Mr. L. S. Foster spoke of an unusual flight of Killdeer Plover (*Ægial-*

itis vocifera) along the New England coast after the storm of November 27. Mr. Dutcher said that his men at the east end of Long Island reported large numbers of these birds early in December.

January 18, 1889.—Mr. William Dutcher in the chair.

Mr. John Tatlock, Jr., upon being introduced, made some remarks about Prof. W. W. Cooke's recently published report upon 'Bird Migration in the Mississippi Valley.' In regard to the chapter on 'The Relation of Migration to Barometric Pressure and Temperature,' the speaker criticised Prof. Cooke's conclusions as being based upon insufficient data. Mr. Tatlock finds ground for believing that temperature alone influences bird migration, and differs further from Prof. Cooke, who thinks migration occurs simultaneously over a wide area, in deeming it largely local. In the discussion which followed, Mr. Jonathan Dwight, Jr., mentioned the necessity of the use of very full data in reaching conclusions. Mr. William Dutcher said that not very much regarding migration could be deduced from birds striking light-houses, for the reason that birds do not strike on clear nights. A single exception is that of a Greater Yellowlegs (*Totanus melanoleucus*) which struck a Long Island light-house one moonlight night. An unexplained fact is that where one bird strikes in the spring, twenty strike in the fall.

Mr. Dutcher read extracts from a letter written by Mr. Austin F. Park, Troy, N. Y., regarding *Otocoris alpestris praticola* breeding there on Green Island. Six, including three young, were taken July 21, 1888, and six others, one young just from the nest, on July 28. This is of special interest in comparison with the early breeding of the species in the western part of the State, as has been repeatedly recorded, as it doubtless indicates that the birds rear more than one brood each season. Mr. Dutcher also read extracts from the journal of the keeper of Little Gull Island light-house, Long Island, which related to the birds seen there from August 16, 1888, to the end of the year. The first Cormorants were noted September 1. One third of those seen on November 8 were "the large kind," supposed to be *Phalacrocorax carbo*.

Mr. A. H. Hawley read a paper on the birds observed by him in Santa Clara and Santa Cruz Counties, California, during the year 1888, and exhibited a large number of specimens.

February 1, 1889.—Mr. George B. Sennett, President, in the chair.

Mr. Dutcher read a paper by Mr. Newbold T. Lawrence, entitled 'Long Island Bird Notes,' which will be published later in 'The Auk'; he also exhibited a singular looking mollusk (*Æolus papillosa*), in alcohol, from Long Island.

Dr. George Bird Grinnell presented a paper upon the Rocky Mountain Goat (*Mazama montana*), which will be published in 'Forest and Stream.' The limits of the range of this animal have never been fully defined by any one writer. It is a mammal belonging to the Arctic fauna and only found among the high and rugged mountains of the Rockies and Coast Range, where the snow lies all the year. The center of its abundance seems to be in Western Montana, Idaho and Washington Territories, and

British Columbia, and it has been found from about latitude 44° to about latitude 65°; its southernmost records being on the highest peaks of the Sierra Nevada, near Mt. Whitney ('Forest and Stream,' Feb. 26, 1885). This Goat is in no immediate danger of extermination, as it inhabits the most inaccessible localities and has few natural enemies.

Papers were read from the following persons: Mr. E. S. Gilbert, on 'Crow Roosts and Crows'; Dr. F. W. Langdon, 'On the Occurrence in large numbers of Sixteen Species of Birds in Ohio,' as follows: *Fulica americana*, *Ectopistes migratorius*, *Asio accipitrinus*, *Conurus carolinensis*, *Chordeiles virginianus*, *Corvus americanus*, *Molothrus ater*, *Quiscalus quiscula æneus*, *Loxia curvirostra minor*, *Loxia leucoptera*, *Habia ludoviciana*, *Progne subis*, *Clivicola riparia*, *Stelgidopteryx serripennis*, *Ampelis cedrorum*, and *Helminthophila peregrina*; Mr. George N. Lawrence, 'An Account of the Former Abundance of some species of Birds on New York Island at the time of their Migration to the South'; Mr. C. J. Pennock, 'Thousands of Turkey Buzzards, and a Flight of Hawks'; Mr. John H. Sage, 'A Flight of Hawks'; and Mr. E. E. Thompson, on 'Bird Hosts in Manitoba.' Mr. John N. Drake also gave a verbal account of Grackles roosting in great numbers in a Maine swamp. Mr. Lawrence's paper having a peculiar personal and local interest is here given in full.

An Account of the Former Abundance of some species of Birds on New York Island, at the time of their Migration to the South. BY GEORGE N. LAWRENCE.

At our country place (Forest Hill), eight miles from the City Hall, situated on the high ground immediately north of the valley of Manhattanville and fronting on the Hudson River, the opportunity to observe the movements of migratory birds was an excellent one, as they generally followed the course of the river in their line of flight. Here our family lived, during the summer, until about 1850, when the place was sold.

From my earliest recollection I had a fondness for birds, and before I could use a gun, watched the great numbers passing with much interest. I was allowed to have a gun about the year 1820, and from that time until leaving our old homestead, I paid more strict attention to their movements and the times of their appearance.

The first birds flying south were the Red-winged Blackbirds (*Agelaius phoeniceus*); from the middle of July, for some weeks, there would be a flight of this species every afternoon, coming in flocks of from twenty-five to fifty or more individuals.

During most of August and September, in the afternoon of each day there would be a continuous flight of the White-bellied Swallow (*Tachycineta bicolor*), accompanied by a few Barn Swallows (*Chelidon erythrogaster*); the number that passed was very great.

About the first of September, when there was a strong northwest wind, Passenger Pigeons (*Ectopistes migratorius*) were sure to appear in great

numbers, flying more abundantly in the morning, though there were occasional flocks all day. From our place north to Fort Washington Point, three miles distant, the view was unobstructed, and for the entire distance it was almost an unbroken forest. We could see the flocks make their appearance over the Point, consisting of from twenty-five to over a hundred Pigeons, and come sweeping down over the tree tops seemingly at a speed of about 75 miles an hour, and consequently they soon reached the position where we were awaiting them. The flocks followed each other in quick succession, and as they dashed by before a strong northwester—sometimes quite close to the ground—they did not offer an easy mark for even an expert gunner. I never succeeded in killing more than four with one shot, from a passing flock.

On the south side of Manhattanville Valley the ground is elevated, much the same as it is on the north side. Here is one of the old country seats on the Hudson River, known as 'Claremont,' and this place was fixed upon as the most eligible sight for General Grant's Tomb. The original fine dwelling house is still in good condition. During one of these great flights of Pigeons, the house was occupied by some gentleman, whose name I cannot recall, but I remember that from the top of the house, in one morning, a hundred or more were shot by him. These flights continued as long as I lived at Manhattanville, and Pigeons were quite abundant, I was informed, for some years after, but at the present time a single one would be a rarity. Even into October there would be a flight when the wind was favorable, but in the earlier flights they were the most abundant.

In September Kingbirds (*Tyrannus tyrannus*) flew south in considerable numbers. They were much prized as game, by our foreign citizens with shooting proclivities.

About the first of October, on the occurrence of a few cold days, there would be a flight of Golden-winged Woodpeckers (*Colaptes auratus*) and some Red-headed Woodpeckers (*Melanerpes erythrocephalus*). They did not come in flocks, but singly in large numbers.

At the same time Blue Jays (*Cyanocitta cristata*) passed south in large flocks.

On favorable days in October there would be large flights of Crows (*Corvus americanus*) winging their way south to a more congenial climate.

In October flocks of Cedar birds (*Ampelis cedrorum*) migrated south very regularly. During the same month the plaintive melody of the note of the Bluebird (*Sialia sialis*) would be heard overhead from passing flocks. This favorite species was much sought after by young gunners: I have seen boys with long strings of them, carried in that way for the want of a game bag.

By the middle of October, Robins (*Merula migratoria*) were abundant, sometimes flying in flocks, but at other times they came in such numbers that they could be seen almost everywhere. They continued to be numerous for about two weeks, when the majority went south, though

some would remain even into the winter. The flight was usually from the north, but on one occasion, the first great flight of that year, was from the south at the point where I was, and I never saw them in greater numbers. This was a movement that much surprised me.

When I was a schoolboy a favorite skating place was Stuyvesant's Creek, a considerable body of water, which had its head quite close to the Third Avenue, about 20th Street, and it emptied into East River—I think about 12th Street. On the north side of it, there were high woods, where I have seen Robins pursued by gunners, when the ground was covered with snow and the creek frozen.

Speaking of skating, reminds me of an experience I had when a boy; it was one that probably but few persons have had who are now living. I skated from the 'Collect,'* (quite a large pond so called, which existed near where the 'Toombs' now stands in Centre Street) down the Canal that ran through the middle of Canal Street and was the outlet of the Collect. I passed under the wooden bridge, that crossed the canal at Broadway, and on to Lispenard's Meadows, some distance west of Broadway. These meadows occupied a large area, and extended to the Hudson River.

At the time the Robins were migrating, there would be frequently flocks of Meadow Larks (*Sturnella magna*) going south. I recollect in my younger days, that about three miles from the City Hall, on the east side of the Bloomingdale Road, were extensive pasture fields—about where 40th Street now is; in these the Larks accumulated in large numbers in October, and of course were much hunted by city gunners.

March 1, 1889.—Annual Meeting. Mr. George B. Sennett, President, in the chair.

The following officers were elected for the ensuing year. President, Mr. J. A. Allen; Vice-President, Mr. Frank M. Chapman; Secre-

[* Concerning this pond, DeWitt Clinton says, in his paper read before the N. Y. Lyceum of Natural History, August 9, 1824, 'On the *Hirundo fulva* of Vieillot': "Reputable men, laboring under optical delusion, have declared that they have witnessed the descent of the swallow into the Hudson, and the pond on Manhattan Island called the Collect."

"North of this lay the Fresh Water Pond, with its neighboring district of the Collect or Katch-Hook. This name, which finally came to be applied to the pond itself, was originally given by the Dutch settlers to a point of land on the shores of the pond of about forty-eight acres in extent, the site of an old Indian village. The Fresh Water Pond was one of those traditional ponds which are found in every village, reputed to have no bottom—a reputation which it failed to sustain against the researches of modern times. The pond was indeed, very deep; deep enough, in fact, to have floated the largest ships in the navy. Its waters were filled with roach and sunfish, and to preserve these, the city authorities passed an ordinance in 1734, forbidding any person to fish in it with nets, or in any other way than angling. But the beautiful pond has passed away, and the spot where its sparkling waters once played is now filled by the 'Halls of Justice' with its gloomy prison cells."—MARY L. BOOTH, Hist. City of New York 1st. ed., 1859, pp. 322, 323.—L. S. F.]

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 tary, Mr. Jonathan Dwight, Jr.; Treasurer, Dr. C. Slover Allen. Resolutions were adopted relative to the death of Mr. S. Lowell Elliott, a Resident Member. Mr. Ernest E. Thompson made some remarks upon the 'Zoögraphical Areas of the Province of Ontario, Canada,' in substance as follows: A line drawn from the southern end of Georgian Bay to the eastern end of Lake Ontario seems to divide the Canadian from the Alleghanian fauna, and this same line is the dividing line between the Laurentian and Silurian geological formations. North of it is a region of rocks and fresh water lakes, where are found such species of birds as the Spruce Partridge (*Dendragapus canadensis*), Hudsonian Chickadee (*Parus hudsonicus*), and Three-toed Woodpeckers (*Picoides arcticus* and *P. americanus*); while south of it is found an alluvial soil and a fine farming country, where such species as the Black Squirrel (*Sciurus carolinensis leucotis*), Fox Squirrel (*S. niger ludovicianus*), Blue-gray Gnatcatcher (*Polioptila caerulea*), Wood Thrush (*Turdus mustelinus*), and Red-bellied Woodpecker (*Melanerpes carolinus*) are found. Along the shores of Lake Erie grow liriiodendron, walnut, chestnut and peach. North of this is a region of tamarack swamp, although in elevation 250 feet higher. At Ottawa there is an area of depression, characterized by many forms of life usually confined to more southern latitudes. Such species as *Polioptila caerulea*, *Turdus mustelinus*, *Harporhynchus rufus*, *Ammodramus passerinus*, and *Ammodramus caudacutus* are among those recorded from this region. Near Lake Nipissing is another area of depression where some oak and beech are found. A curious fact is that during the spring migration the Plovers and Shore-birds approach Toronto from the east and then turn abruptly northward, while the Warblers come from the southwest. Fifty years ago the Skunk (*Mephitis mephitis*) was not found at Toronto, where it is now established. A strange record is that of a Franklin's Spermophile (*Spermophilus franklini*) killed near Gravenhurst, about 120 miles north of Toronto.

Mr. George B. Sennett exhibited, from his collection from Tamaulipas, Mexico, many species of birds given in Mr. Ridgway's 'Manual' as found in the region contiguous to the United States, and liable to occur within our limits.—JONATHAN DWIGHT, JR., *Recording Secretary*.

NOTES AND NEWS.

IN THE January number of 'The Auk' (Vol. VI, p. 81) the death of Mr. Thure Kumlien of Milwaukee, Wisc., an Associate Member of the A. O. U., was briefly mentioned, with the statement that a fuller notice was necessarily delayed from lack of sufficient information. Since then we have been favored with two published memorial notices of Mr. Kumlien,—one by Mr. William M. Wheeler, Custodian and Secretary of the Public

Museum of Milwaukee, published in the Sixth Annual Report of that Institution, and the other by Mr. Edward L. Greene, published in 'Pittonia' (Vol. I, pp.250-260).—from which we condense the following sketch.

Thure Ludwig Theodor Kumlien was born in Herrlunda Parish, Westergothland, Sweden, Nov. 9. 1819, and died in Milwaukee. Wisc., where he had long lived, August 5, 1888, in his seventieth year. He was graduated from the University of Upsala in 1843, and the following year immigrated with his young wife to America, settling near Lake Koshkonong, in Jefferson County, Wisconsin. For the next twenty years he devoted much of his time to gathering natural history collections for the Stockholm, Leyden and British Museums, and for the Smithsonian and various other museums in this country. From 1844 he was in constant communication with Dr. Thomas M. Brewer till the death of Dr. Brewer in 1879, through whom most of his ornithological observations were published. He was also in frequent correspondence with the late Prof. S. F. Baird, and with such eminent foreign naturalists as Fries, Sundeval, Nielson, and von Eylen of Sweden, Steenstrup, Sars, and Loven of Norway, Peters of Berlin, Schlegel of Leyden, J. E. Gray, Alfred Newton and H. E. Dresser of England. For three years (1867-1870) he was a teacher in Albion Academy, and later was in the employ of the State Normal Schools and the Wisconsin University, for which he formed collections in natural history. From 1881 to 1883 he was employed by the Wisconsin Natural History Society, and for the last five years of his life was Conservator to the Milwaukee Public Museum. He was a zealous collector and acute observer, a man of high intellectual culture, and most amiable and unassuming in character. His youthful love for scientific pursuits persisted through life, but in consequence of his untoward surroundings and isolation from large museums and libraries his investigations were necessarily limited to the products of the woods and prairies of his immediate vicinity. His early pioneer life was thus unfavorable to the spirit of research, and he has consequently left no published works or papers of any great importance. His influence, however, upon the rising generation of naturalists with whom he came in contact was most efficient and encouraging. Ornithology and botany were his favorite fields of study, and he is said to have early made himself familiar with all of the species of birds and plants found about his wilderness home. To quote from Mr. Greene's tribute, "A purer, nobler type of the naturalist of the reserved and quiet, non-advertising class, there probably was not in his day, in America," than Mr. Kumlien; and, he adds, "there will be more than one botanist among us, with whom the name and memory of Thure Kumlien will forever be held in deep and loving veneration." Dr. Brewer made copious extracts from Mr. Kumlien's ornithological notes in the 'History of North American Birds,' by Baird, Brewer, and Ridgway, and also published many of his records in the 'Proceedings' of the Boston Society of Natural History. An almost abnormal dislike of placing himself before the public is said to have prevented his publishing the results of his researches.

MR. S. LOWELL ELLIOTT, an Associate Member of the A. O. U., died in Brooklyn, N. Y., of consumption, Feb. 11, 1889, at the age of forty-five years. Mr. Elliott was well known among the scientists of New York and Brooklyn, being a member of several of the leading scientific associations of these cities. For a number of years he had been a sufferer from the disease which terminated his career, yet he continued to work with enthusiasm till within a few weeks of his death. Although taking a general interest in natural history, entomology was his special field. He had acquired one of the finest entomological libraries in the country, and also a large and valuable collection of insects. He was also a well-known bibliophile and collector of American works and papers relating to natural history.

WE ARE pained to hear of the death of Mr. Richard Spaulding Wray, B. Sc., of London, who died Feb. 12, 1889, of phthisis, at the early age of twenty-four years. He was a biologist of great promise, and for the last four years had been an assistant of Professor Flower in the Natural History Museum of South Kensington. In making preparations to illustrate the wing structure in birds, he made many original observations, which he later published in papers entitled 'On some Points in the Morphology of the Wings of Birds' (P. Z. S., 1887, pp. 343-357, pll. xxix-xxxii) and 'On the Structure of Barbs, Barbules, and Barbicels of a Typical Pennaceous Feather' (Ibis, 1887, pp. 420-423, pl. xii). His great natural gifts fitted him eminently for a successful investigator, and he had entered upon his work with great earnestness.

MESSRS. CUPPLES & HURD of Boston are publishing in parts a work on 'The Eggs of North American Birds,' by Mr. C. J. Maynard, of which two parts have already appeared. The work will be completed in "eight parts, each part containing a description of seventy species more or less, and at least one or two hand-colored plates," all to be issued by May 1, 1889. The price is four dollars for the eight parts.

UNDER the title 'Contributions to Science,' Mr. C. J. Maynard of Newtonville, Mass., is about starting a quarterly octavo journal, illustrated with plates, to serve as the medium for the publication of his own papers on various scientific subjects in a connected or concentrated form. Volume I will contain "over two hundred pages" of text and "sixteen hand-colored plates." The first number is announced to appear in April, and will be mainly ornithological, including among other things a 'Description of a Supposed New Species of Gannet,' from the Island of Little Cayman, West Indies. The subscription price to the Journal is \$3.75 per year or \$1.00 per number.

'THE ORNITHOLOGISTS' AND OÖLOGISTS' SEMI-ANNUAL,' of which Vol. I, No. 1, was issued in January, by Mr. W. H. Foote, of Pittsfield, Mass., is an octavo of 48 pages, of creditable appearance, and containing many notes and papers of permanent interest. Prof. J. A. Singley, of Giddings, Texas, is the leading contributor to the present number, and

in his two papers on collecting and preserving birds and their eggs, he gives not only good instructions to young collectors but some very excellent advice. He says, among other good things, "In forming a collection, the amateur should be satisfied with a pair, male and female, of each species; but where the plumage varies greatly with the season he may have specimens enough to show the variations. The professional ornithologist needs a large series; but such is not the case with the amateur. Thoroughly work up the birds of your locality before doing much exchanging After you have learned to make a skin do not prostitute your knowledge to the making of 'millinery skins.' That is a depth to which the true collector or taxidermist never falls."

'THE HAWKEYE ORNITHOLOGIST AND OÖLOGIST,' of which we have received No. 9 of Vol. I (Sept., 1888), is a quarto monthly of about 12 pages to the number, edited and published by E. B. Webster at Cresco, Iowa. Although mainly ornithological, it is not exclusively so. as its title might be taken to indicate. In the number before us Mr. W. T. Tegetmeyer has a good popular article on the anatomy of the King Penguin, and there are various pleasantly written articles on more or less well-known North American birds. Its list of contributors contains the names of several well-known ornithologists of the United States and Canada.

'THE CURLEW' of which we have received a sample copy, is a small 12mo. ornithological monthly, published by O. P. Hauger & Co., at Orleans, Ind. It is said to represent "the Young Ornithologists' Association, and the Wilson Ornithological Chapter of the Agassiz Association, and is edited by the officers of these associations." The number before us (Vol. I, No. 3, Dec., 1889) gives the 'Constitution' of the Wilson Ornithological Chapter, with a well-considered 'Plan for Observation.' Monthly reports are to appear in 'The Curlew,' which it is proposed to soon 'greatly enlarge' and otherwise improve. 'Notes from Wise County, Texas,' by John A. Donald, the opening article of the number before us, is an interesting paper, and we cordially wish this new journal a successful career.

MR. GEORGE C. CANTWELL (1215 Chestnut Ave., Minneapolis, Minn.) is collecting data for an authentic and complete list of the birds of Minnesota, and has issued an appeal for aid which we heartily second. The appeal is especially addressed to Minnesota ornithologists, soliciting their co-operation, and asking for concise lists of the birds of their respective localities, with notes as to their relative abundance, breeding, and migrations, full credit for such aid being guaranteed. It is proposed to publish the list about the end of the present year, in the pages of our valued contemporary, the 'Ornithologist and Oölogist.' A list of the character proposed cannot fail to be of interest and value.

A CALIFORNIA ORNITHOLOGICAL CLUB was organized in San Francisco, Cal., on Feb. 9, 1889, "for the study and advancement of the orni-

thology of the Pacific Coast," with the following officers for the year 1889: President, Walter E. Bryant; Vice-President, Harry R. Taylor; Secretary and Treasurer, W. Otto Emerson.

THE KENT SCIENTIFIC INSTITUTE, incorporated at Grand Rapids, Mich., "for the promotion of scientific education, and the establishment and maintenance of a natural history museum," has elected the following officers for the year 1889: President, E. S. Holmes; Vice-President, W. A. Gruson; Recording Secretary, C. W. Carman; Corresponding Secretary, E. S. Holmes; Treasurer, C. A. Whittemore, Director of the Museum, W. A. Gruson; Curator, C. W. Carman; Librarian, E. L. Mosely.

THE OFFICERS of the California Academy of Sciences for the year 1889 are as follows:—President, W. H. Harkness; 1st Vice-President, H. H. Behr; 2d Vice-President, George Hewston; Corresponding Secretary, Frederick Gutzkow; Recording Secretary, J. R. Scupham; Treasurer, I. E. Thayer; Librarian, Carlos Troyer; Director of Museum, J. G. Cooper.

IN THE January number of 'The Auk' (Vol. VI, p. 82) request was made that specimens of certain obscure groups of birds there mentioned be sent to Mr. Robert Ridgway to be submitted by him for inspection and study at the next meeting of the American Ornithologists' Union to be held in New York City next November. To save trouble and reshipment Mr. Ridgway desires that the specimens be sent direct to the American Museum of Natural History, New York City, to the care of Mr. J. A. Allen, who has consented to receive them and care for them during the meeting, at the close of which they will be returned to their owners. It is hoped that the matter will be kept in mind, and that a large amount of interesting material will be thus brought together for the entertainment of the members, and in the interest of further light on some of the obscure forms of the groups selected for investigation.

WE LEARN that Mr. William Lloyd is about to explore the ornithology of the Volcano of Colima and neighboring snow-crowned peaks in Mexico, in the interest of Mr. Godman,—a region which should give results of the highest interest.—Mr. and Mrs. H. H. Smith sailed recently for the island of St. Vincent, West Indies, to thoroughly explore this and neighboring islands for birds and insects, also in the interest of Mr. Godman.—Messrs. Southwick and Webster have a collector gathering birds and mammals in the vicinity of Santarem, on the Lower Amazon.—Mr. Frank M. Chapman is spending several months in some of the little known parts of Florida, collecting birds and mammals for the American Museum of Natural History, New York City.

DR. R. W. SHUFELDT has returned from Fort Wingate, N. Mex., to Washington D. C. Here with collections and libraries at hand, he will be better situated to prosecute his scientific pursuits.

THE AUK:

A QUARTERLY JOURNAL OF ORNITHOLOGY.

VOL. VI.

JULY, 1889.

No. 3

DESCRIPTIONS OF SUPPOSED NEW SPECIES OF HUMMINGBIRDS BELONGING TO THE GEN- ERA *AMAZILIA* AND *ERIOCNEMIS*.*

BY D. G. ELLIOT, F.R.S.E.

A SMALL lot of Hummingbirds, containing four specimens, having been received at the American Museum of Natural History, Professor Allen placed them in my hands for determination, and description if any proved new. The two now described appear very distinct from any species of the Trochilidæ, of which I have any knowledge, and the remaining two are interesting for the reason that one is the rare *Petasophora coruscans*, of which only three or four specimens are known, and the other exhibits a rather unusual case of albinism. They were stated to have come from Bogota, but their exact habitat is doubtful.

Amazilia lawrencei, sp. nov.

Crown of head, neck, back, upper wing-coverts, and upper tail-coverts, dull bronzy green. Wings purple, base of primaries and secondaries blackish. Throat, sides of neck, and breast glittering grass-green; lower part of flanks and abdomen very dark chestnut brown; under tail-coverts cinnamon. Tail bright chestnut, tips and edges of both webs bluish black, most extensive on lateral feathers, reaching on outer webs nearly to their base. Maxilla black, mandible black with a slight indication of flesh-color at the base. Feet black. Length of wing, $2\frac{1}{2}$ in.; tail, $1\frac{1}{2}$; bill,

[* An author's edition of 100 copies of this paper was published April 9, 1889.—ED.]

$\frac{1}{2}$. Total length of skin is $3\frac{1}{2}$ in., but as it has been very much shortened in making it up, it is probable the real length would be nearer four inches.

Habitat. Bogota?

As will be seen from the above description, this bird is not closely related to any of the described species of *Amazilia*. From *A. yucatanensis* and its allies it can at once be distinguished by its black bill, differently colored abdomen and under tail-coverts. In fact, from all the species with the throat and breast metallic green, to which section the *A. lawrencei* belongs, it has well-marked and easily defined characters. I have named it after my life-long friend, Mr. George N. Lawrence, an excellent Trochilidist and well known by his numerous ornithological writings.

Eriocnemis incultus, sp. nov.

Crown of head, upper parts of body and upper tail-coverts bluish black, the feathers on rump and upper tail-coverts margined with rufous. Throat and centre of breast dull lead-color, feathers of throat edged with white. Wings deep purple. Sides of breast bluish black. Flanks black with a deep brownish reflection. Abdomen white spotted with brown. Tail steel-blue, nearly square at tip. Feathers of under tail-coverts gray in centre, glossed with green, and edged with white. Thigh tufts white. Bill black, base of mandible flesh color; feet black. Length of wing, $2\frac{1}{2}$ in; tail, $1\frac{1}{2}$; bill, $\frac{1}{2}$ in.

Habitat. Bogota?

The specimen is not in fully adult plumage as is shown in the rufous edging of the feathers of the rump and upper tail-coverts, as these in the fully matured bird would undoubtedly be a uniform bluish black like the rest of the upper parts. The only species this bird can be compared with is *E. dyseli* from Ecuador, but besides being considerably smaller, *E. incultus* differs in its lead-colored throat, square tail, and lack of the purple hues seen in its large relative, and very differently colored under tail-coverts.

The other two specimens were a very good example of *Petaspophora coruscans*, with the red on throat and breast rather darker and slightly more extended than the specimen in my collection in the Museum, caused probably by individual variation, and a male example of *Chrysuronia ænone* with the under parts pure white, due probably to albinism.

^a SOME ACCOUNT OF THE BIRDS OF SOUTHERN
GREENLAND, FROM THE MSS. OF
A. HAGERUP.

EDITED BY MONTAGUE CHAMBERLAIN.

THE MINING village of Ivigtut, where Mr. Hagerup was residing when he made the observations which are recorded in these notes, is situated on the southern shore of Arsuk Fjord, Greenland, in latitude $61^{\circ} 12'$, and longitude $48^{\circ} 10'$. Arsuk Fjord is about two English miles in breadth, and is walled by cliffs, which rise abruptly from the water to the height of 1,000 to 1,500 Danish feet, one peak—Mount Kunnak—towering up some 4,400 feet. These cliffs are broken at intervals by small valleys down which streams of water find their way to the sea. Trout are abundant in the streams, and the banks are deeply fringed with low bushes of willow and alder. (The tallest and largest bushes are found close to the fields of eternal ice, at the head of the fjord.) In one of these valleys lies Ivigtut, close by the shore of the fjord.

During the summer months four species of singing birds are found in the vicinity of Ivigtut. Around the houses in the village Redpolls are numerous, and the moist spots near by are tenanted by Lapland Longspurs, while the stony places are selected as building sites by Snowflakes and Wheatears. A few pairs of Mallard Ducks also breed in the neighborhood each season. On climbing the sides of the adjacent hills Snowflakes and Wheatears are met with, as well as a few Ptarmigan and an occasional solitary Raven or Eagle.

In winter the only birds seen on the land are Ptarmigan, Ravens, Eagles, and Falcons, and these, with the hare and Arctic fox, are the only animals seen on the land during the colder months. The reindeer lived on the highlands above the fjord at an earlier period, but now is not found nearer than thirty miles to the northward.

It is the fjord which is at all seasons best furnished with animal life. There an occasional white bear may be encountered—carried in by the 'big ice,'—and several forms of whale, even those of the largest species, are frequent visitors, as are, also, numerous

seals. In summer the Gulls, and in winter Eiders and Auks predominate, of the seafowl that seek food there. Near to the mouth of the fjord, where the walls are especially high and steep, Gulls breed in large colonies—some numbering several thousand.

Amid the adjacent hills lie numerous lakes where Gulls might be supposed to make their nests, but in a careful survey of several suitable localities no evidence was discovered that the Gulls ever visit these inland waters. Mr. Hagerup considers that this neglect of such apparently favorable nesting ground may be attributed partly to the presence of foxes, and partly to the continuous pursuit of the birds by the native Greenlanders and the Danes. Another cause may be found in the fact that lakes at a higher altitude than 700 feet above sea level are not free of ice before the first of July. Along the margins of these highland lakes are thin fringes of stunted vegetation, and in their depths swarm schools of trout that feast during the summer upon larvæ of the mosquito which abound there.

The mean temperature of Ivigtut for the three coldest months of the year is -5° C., and for the three warmest months, 7° C. The lowest point registered by the thermometer during the winter of 1886-87 was -28° C., and the highest temperature during the summer following was 21° C. The mean temperature of January, 1887, was -12° C. The rainfall aggregates $35\frac{1}{2}$ inches in a year.

Arsuk Fjord was covered with ice on November 19, 1886, but during the winter the southeastern gales (which are numerous at that season, and are often accompanied by warm rains) broke off large flakes from the seaward margin of the ice, and as ice did not form again on the places thus opened, the result was that the ice-covered portion of the fjord was continually being diminished, even while the mean temperature was becoming lower. The upper section of the fjord was not free from ice until the first days of June, the date that usually finds the leaves opening on the willow bushes. By the 10th of September these leaves are bleached by the night frosts.

Urinator imber. LOON.—This species is a not uncommon summer visitor, breeding in suitable places. In 1886 the first examples were seen on May 22, and in the autumn the last was seen on November 18, when the fjord was partly covered with ice. In 1887 the first spring arrival was seen on May 5—a young bird, which was shot. Mr. Hagerup thinks it improbable that this species breeds at a greater height than 700 feet, or,

at the utmost, 1000 feet, because the lakes at that altitude are only three months or less free from ice. During June examples are frequently seen on the fjord. Pairs and single birds are often seen flying at a very great height in the air, uttering their loud harsh cry. Several clutches of eggs have been obtained from the natives, one of which was taken on July 20, 1884, near Julianshaab, in latitude 66° N.

Urinator lumme. RED-THROATED DIVER.—This is a summer visitor, but is not common. The first spring arrivals were noted in 1886 on May 28, and in 1887 on May 24. Clutches of eggs have been obtained at various dates from June 15 to July 9. One taken on June 26, near Godthaab, contained a nearly full grown chick.

Fratercula arctica. PUFFIN.—Accidental. One was harpooned near Arsuk on July 15, 1887.

Cepphus grylle. BLACK GUILLEMOT.—A common resident. The color of the plumage changes in April. On April 8 some specimens were nearly black, but the greater number were not quite as dark as a female Eider. The eggs are laid in June.

Uria lomvia. BRÜNNICH'S MURRE.—An abundant winter visitor, appearing on the fjord in flocks of one hundred to a thousand birds. They are generally found swimming over very deep water, much deeper than that upon which the Eiders gather,—too deep to admit of their going to the bottom for food. When approached they usually escape by swimming or diving, and but seldom take to the wing. They are very fond of sitting near the edge of the ice, but are never seen to stand while resting either on the ice or land.

In the autumn of 1886 the first comers were observed on November 9, and during the following day large numbers appeared. On April 16, 1887, they were yet numerous, though somewhat diminished, but by the 25th of that month the greater part had left. A few remained through May, and on the fourth day of June some groups of two to five individuals were observed. In 1886 the last small flocks, numbering twenty to thirty, were seen on May 30.

Alle alle. DOVEKIE.—A winter visitant; not numerous near Ivigtut, but more common in the vicinity of Arsuk, at the mouth of the fjord. On January 16, 1887, two examples were shot from the edge of the ice, and at the same time sixty-five examples of Brünnich's Murre were secured, and this will give the reader a fair idea of the relative abundance of the two species.

Stercorarius parasiticus. PARASITIC JAEGER.—This species is said to have been observed occasionally in this vicinity, and is reported as breeding in Greenland.

Gavia alba. IVORY GULL.—Mr. Hagerup has examined two skins of adult specimens, and one of a young bird, which were said to have been taken near Ivigtut several years ago.

Rissa tridactyla. KITTIWAKE.—An abundant summer resident; appearing about March 26, and remaining until October. A few have been seen as late as October 23.

In autumn these birds depart very gradually, but in spring they return in large flocks, and at times the entire colony appears together. On first arriving they settle in the central portions of the fjord, and are always seen in compact groups, whether on the land or water. They are at that season extremely shy, but this shyness lessens as the mating season advances, and then, also, the flocks separate, and during the latter part of April and in May they fly off in small parties or in pairs. On the first day of June, 1887, the fjord below their nesting place was covered with ice, although at that date in 1886 the birds had begun to lay. Some fifteen hundred to two thousand pairs build on a cliff near the mouth of Arsuk Fjord, their nests being placed between two feet and one hundred feet from the water's edge—far below the nests of the Iceland Gull on the same cliff.

During April the Kittiwakes are often observed to leave their feeding place—on the open water, which at that season is some six miles away from their nesting ground,—and rising to a considerable height in the air, fly to the cliff on which they build, and after circling over this spot for a time, as if reconnoitring, uttering their harsh cry all the while, they return again to the water. When flying alone, or in small parties, they are usually silent, but when in large flocks, during the spring or when gathered about their nesting site, or at some unusually fine feast—such as the carcass of a whale—they continually utter a loud harsh cry which, at times, becomes almost a shriek. There is a decided similarity between the cry of the Kittiwake and that of the Gull-billed Tern, and the eggs of these two birds are, also, much alike.

On July 7, 1887, Mr. Hagerup saw an iceberg which served as a resting place for several hundred young Gulls—Kittiwakes, Glaucous Gulls, Iceland Gulls, and Great Black-backed. Several adult Kittiwakes and Iceland Gulls were with the party. As usual the Kittiwakes were on the lower portion of the berg, nearest the water's edge, the different species being sharply separated.

When the fjord is visited by whales the Gulls follow close in their wake and gather in the small animals the whales drive toward the surface.

Larus glaucus. GLAUCOUS GULL.—This is a very common species, and might be called a resident, for even during the coldest weather some individuals are seen daily near the open water, though the examples occurring in midwinter are usually young birds. During March and April, when the Eiders appear in flocks near the coast and feed on mussels which they dive to the bottom for, these Gulls may be observed swimming or flying amid the Eiders, and as soon as a Duck comes to the surface with a mussel, a Gull will make an effort to secure it.

An adult bird, the first of the season, shot on March 20, 1887, was in perfect summer plumage.

The principal breeding place of this Gull in the vicinity of Ivigtut is close by the open sea, near the mouth of the fjord, where they congregate in considerable numbers. In August the young birds assemble in the fjord, especially near the narrow channels, as at Karsuk and Ellerslie, and

feed during that month and the next on the berries of *Empetrum nigrum*. At that season they are easily shot, and their flesh is of a very savory flavor. The breasts of the young of all species of Gull are eaten here as a delicacy.

Larus leucopterus. ICELAND GULL.—This species is abundant in summer, and probably some individuals, young birds perhaps, remain during the entire year; but as no examples have been secured in the winter season, and as these gray Gulls are silent at that time, it is possible that all those observed in winter have been Glaucous Gulls.

In March the Iceland Gulls arrive from the south. In 1887, the first, a flock of several hundred, were seen on March 16, and ten days later another flock of similar size put in an appearance. About a thousand pairs usually breed on a cliff which overlooks the fjord, a short distance above Ivigtut. The nests are placed on the top of this cliff, about 2500 feet above the water. Young birds, fully fledged were found here on July 23. The young are frequently seen in company with the young of the Glaucous Gull.

Larus marinus. GREAT BLACK-BACKED GULL.—This species is not numerous, and though partially resident, is most abundant during the latter part of the autumn.

Fulmarus glacialis. FULMAR.—Mr. Hagerup reports having seen this species daily, on the voyage out from Denmark. It was first observed off the Shetland Islands, and was last seen within a few miles from the shores of Greenland. It has not been met with near Ivigtut. The birds met with in mid-ocean were almost entirely white, but on approaching the eastern shores examples of a dark sootish color were seen mingled with the light colored birds.

Oceanodroma leucorhoa. LEACH'S PETREL.—A few examples have been seen near the mouth of the fjord.

Phalacrocorax carbo. CORMORANT.—This is a winter visitor and though it is seldom seen as far up the fjord as Ivigtut, is quite common near Arsuk which lies closer to the ocean. On the first of April many were still near their winter quarters, and on the 12th of that month four specimens were taken.

The skins of this bird and of the Loon are used in Denmark for ladies' muffs, etc.

Merganser serrator. RED-BREASTED MERGANSER.—Mr. Hagerup considers this a resident species, and reports taking examples in February, April, May, November, and December, though it is most abundant in April and May.

Anas boschas. MALLARD.—A rather common bird. In the immediate vicinity of Ivigtut it is most numerous during the winter months, when small flocks gather on the fjord, keeping close to the shore. A few pairs breed in Ivigtut valley. Two nests with fresh eggs were found there on June 27, 1886, and on June 26, 1887, two ducklings were captured, one in the harbor and the other in the village. They were only three or four days old, and must have been brought down the stream by the parent birds. An

attempt to rear them by hand proved a failure, but the roasting which marked the close of said failure provided an opportunity for testing the flavor of their flesh, which was pronounced delicious.

Glaucionetta islandica. BARROW'S GOLDEN-EYE.—A male of this species was shot near Ivigtut on March 23, 1887, and on April 4 a male and female were seen, but it must be rare here, for neither the Danes nor the Eskimos had seen the birds before.

Clangula hyemalis. OLD-SQUAW.—This species is probably a resident, as it is numerous near Arsuk during the winter. It seldom goes so far up the fjord as Ivigtut, though examples were shot in that neighborhood on March 1, and April 15, 1887.

Histrionicus histrionicus. HARLEQUIN DUCK.—This is a summer resident, and probably breeds in the vicinity of Arsuk Fjord. Mr. Hagerup has taken examples in November and March.

Somateria mollissima borealis. GREENLAND EIDER.—This is a resident and very abundant. Near Ivigtut it occurs during the winter months only, retiring in the breeding season to the small islands near the mouth of the fjord and along the open sea. As the autumn approaches, single birds are seen approaching the fjord; following these are small flocks of twenty or more, and the size of the flocks gradually grows larger until by the middle of December they number several hundreds, and the throng increases as the open water is extended up the fjord by the winter thaws. Mr. Hagerup reports that the birds which go up the fjord during the early part of the winter are females only. He had a good opportunity to examine the flocks, but did not find any males among them until March 11, and then only a few could be discovered, and it was not until the latter part of April that the males appeared in large numbers.

The flocks leave the inland waters for their breeding ground usually about the first week in May, though even into June small flocks remain. These loiterers are mostly females. In 1886 the last flock observed near Ivigtut left there on May 28, but a flock of over fifty, of which very few were males, was seen on June 14, 1887. At that time the 'big ice' surrounded some of their principal breeding grounds, which may account for the birds lingering so late in the fjord. Sets of eggs were taken on June 24 and 29, 1886, and on July 3, 1887.

Somateria spectabilis. KING EIDER.—A winter resident and quite numerous. Mr. Hagerup thinks that possibly the ice on the fjord prevented this species from being observed during the early part of the winter, but it was not until February 1, 1887, that any were seen, and then only one—a male—that was shot near Arsuk. The first to appear off Ivigtut were two males that were captured on February 4, but on the 12th several were seen, males as well as females, and then their numbers rapidly increased for a time. Between the middle of February and the middle of March there were more of the present species than of the common Eider in the fjord, but from the latter date *spectabilis* decreased in numbers, while *borealis* increased, until by April 7 there were not more than one *spectabilis* to twenty *borealis*, and a week later the proportions were about

one to forty. The last adult male King Eider seen in the vicinity was shot on April 23. This species is more frequently observed to stand on the edge of the ice, than is the common Greenland form. The knob on the bill of one shot March 26, 1887, measured 42 mm. in height, and 24 mm. in breadth.

Porzana porzana. SPOTTED CRAKE.—One specimen of this form is said to have been shot near Frederickshaab some years ago.

Tringa maritima. PURPLE SANDPIPER.—This species is common in winter and some breed in the near vicinity, though its principal breeding ground in this section is much further north. It appears on the shores of the fjord early in October, and is seen during the entire winter among the seaweed which is laid bare by the receding water. Three examples were observed on June 4, 1887.

Numenius phaeopus. WHIMBREL.—An example of this species was shot near Arsuk on May 25, 1887.

Charadrius apricarius. GOLDEN PLOVER.—The Director of the colony at Frederickshaab reports taking a young bird of this species in August, 1887. Several adults have been taken in southern Greenland, but no nests have been discovered.

Ægialitis hiaticula. RING PLOVER.—This species was observed on August 15, 1886, near a shallow lake about 1100 feet above sea level. A nest and eggs were found near Godhaven on June 14, 1880.

Lagopus rupestris reinhardti. REINHARDT'S PTARMIGAN.—A resident, but most numerous in winter when flocks come from the north. During the coldest weather it frequents the sides of the lower hills, but in summer is found chiefly at a greater height. Mr. Hagerup reports that very few were found in the vicinity of Ivigtut during the winter of 1886-87. He frequently returned from shooting excursions without having seen one, though in previous seasons as many as three or four hundred had been taken. The birds are rarely met with down in the valley, but on Christmas Day, 1886, some fifty were taken close by Ivigtut.

On June 20, 1886, at about 1000 feet from sea level, a male was taken in perfect winter dress, and on June 28, 1887, a pair were taken that had more white than color in their plumage, the upper parts about two thirds white and the lower parts almost entirely white (or yellowish white). On July 10 a pair were seen that had white only on the belly, and ten days later, at about 1300 feet above the sea, a female and young chicks were met with—the parent in full summer dress. The mother was very solicitous for her young, and in striving to draw attention from them came so near she might have been struck with a walking stick. She continually gave utterance to a guttural cry, which the young answered by pipings much similar to those of a domestic chick. Though quite small the chicks could run nearly as fast as a man, and understood perfectly how to hide in the grass. On the same day, at about 1200 feet, a pair were encountered that seemed, from their behavior, to have lost their young—the appearance of a fox in the neighborhood suggested the cause of their distress. The

female of this pair was in perfect summer dress, but the male had a deal of white on his under parts.

By the middle of October the majority of these birds are in perfect winter costume. Their numbers are kept reduced by their foes—man, fox, Raven, and Falcon.

(To be continued.)

NOTES ON WEST INDIAN BIRDS.

BY CHARLES B. CORY.

A CAREFUL comparison of a large series of specimens representing the genus *Bellona* tends to show that *Bellona exilis* (with slight variations) occurs as far south as St. Lucia, or St. Vincent, if we do not recognize *B. ornatus* from that island. A series of the so-called *B. ornatus* from St. Vincent, now before me, shows the blue coloration of the terminal portion of the crest to be quite constant. Some specimens from the northern islands approach it, although none are quite so highly colored. The blue color on the crest of *B. cristata* has a strong purple tint in some lights. Assuming that *B. ornatus* represents a fairly good insular form, we have

Bellona exilis (Gmel.). — Porto Rico, St. Thomas, St. Croix, Saba, St. Kitts, St. Bartholemew, Montserrat, Nevis, Dominica, Marie-Galante, Desirade, Grand-Terre, Guadeloupe, St. Lucia, and Martinique.

Bellona ornatus (Gould). — St. Vincent.

Bellona cristata (Linn.). — Grenada and Barbadoes.

In 'Birds' of the West Indies' I have given *B. cristata* from St. Lucia, Martinique, and St. Bartholomew, as it was recorded from those islands by other writers. It is probable that *B. cristata* is restricted to the islands of Grenada and Barbadoes.

Volatinia splendens (Vieill.).

This species is given in the 'Birds of the West Indies' as *Volatinia jacarina* (Linn.), the error being caused by my being

unable to procure specimens from Grenada. Through the kindness of Mr. J. Grant Wells, I have lately secured several fine specimens of this interesting species, and it turns out to be *V. splendens* (Vieill.). None of the birds sent have any visible trace of white on the wing, and all have the under wing-coverts and base of the quills black. *V. jacarina* does not occur in the West Indies.

***Certhiola godmani*,* sp. nov.**

Male (Type, No. 14,179, Coll. C. B. Cory, Grenada, W. I. J. Grant Wells):—Smaller than *C. saccharina* and slightly darker, more white on the base of the quills, a broad bright yellow patch on the rump, color of the throat and underparts similar to *C. portoricensis*.

Length (skin), 3.88; wing, 2.18; tail, 1.45; tarsus, .62; bill, .48 inch.

C. godmani has the yellow on the underparts brighter and darker yellow than *C. saccharina*; the throat is very much lighter, and the rump shows the bright yellow of the belly, and not the dull olive yellow of *C. saccharina*.

A large series of the black form of *Certhiola* from St. Vincent and Grenada shows slight differences, which are apparently constant. If *C. saccharina* were common to both islands, we should not admit of separating the black forms from Grenada and St. Vincent, as it is quite probable that *C. atrata* represents a melanistic phase of *C. saccharina*, and is not specifically distinct. Should this prove true, the black form from Grenada would be *C. godmani*, but we should hardly be justified in asserting this to be the case without much more knowledge of the birds than we have at present, and I therefore propose the name *Certhiola wellsii* for the black Grenada bird, pending further investigation.

***Certhiola wellsii*†, sp. nov.**

Male (Type coll. C. B. Cory, No. 14,178. Grenada, W. I. J. Grant Wells):—Similar to *C. atrata*, but somewhat smaller. The bill and feet more slender.

Length, 3.65; wing, 2.10; tail, 1.50; tarsus, .65; bill, .46 inch.

* To F. Du Cane Godman, of London, England.

† To J. Grant Wells, of Grenada, West Indies.

BIRDS OBSERVED AT SANTA BARBARA,
CALIFORNIA.

BY W. A. JEFFRIES.

IN THE early spring of 1883 the old Mission town of Santa Barbara in California, still a little off the main line of travel, seemed to offer to my brother and myself in search of quiet an escape from the ever flitting excursionist and the feeling of unrest and annoyance that his presence is very apt to cause his neighbor.

Finding on our arrival, March 6, that it was not practicable to take rooms out of the town, we settled ourselves well out toward the Mission, on the edge of a lot several acres in extent covered with trees and shrubbery. Placed as we were, early morning collecting could not be done with regularity, as within the town limits shooting was not allowed, while our horses, upon which we relied almost entirely, could not be had before seven. Our habit was to make as early a start as possible, in the saddle if intending to go into the hills, in a buggy if up the valley. We collected either by shooting from the saddle when necessary, or on foot when, as seldom happened, the cañons were inaccessible to our unshod native horses.

At the time of our visit the edge of the town reached nearly to the Mission, beyond which the choice spots only were cultivated, much of the land being used for grazing. The shore line was partly a bluff, partly gently inclined beach with, as a rule, small lagoons or mud flats behind it, at all events land lower than the crown of the beach. Salt water marshes were absent.

In every case where a scientific name is given we took skins. Birds simply seen, I omit.

Previous to March 30 we failed to note any spring flight. Some of the species were present in larger numbers than on our arrival, but new comers were not noted.

Tilled lands were the feeding grounds of *Sturnella magna neglecta*, *Xanthocephalus xanthocephalus*, and very large flocks of *Scolecophagus cyanocephalus*. Passing up the valley, *Chondestes grammacus strigatus*, usually in pasture lands, *Agelaius gubernator*, near pools, as also *Agelaius vocifera*, were abundant. Large flocks of *Carpodacus mexicanus frontalis*

were daily noted all along the valley. Wherever the finely powdered soil had been stripped of vegetation and allowed to bake in the sun *Spotyto cunicularia hypogæa* was found.

Cathartes aura proved abundant and very tame. Several Hawks were seen, but proving shy, we took *Accipiter cooperi* and *Falco sparverius* only. *Zenaidura macroura* showing a preference for cultivation was rare. Two or three pairs of *Geococcyx californianus* were seen almost daily, and were not very shy unless chased, when they at once made for brush.

Of the *Zonotrichia* the most abundant was *gambeli*, next so *coronata*, but few of *intermedia* were taken.

Woodpeckers, if we except *Colaptes cafer*, found everywhere, were not common, presumably from the lack of heavy timber. *Melanerpes formicivorus bairdi* we found almost exclusively in live oaks. *Dryobates nuttallii* was seen and taken, as also *D. pubescens gairdnerii*, the latter being the rarer. *Salpinctes obsoletus*, found in rocky cañons only, was seldom seen. One such cañon to which a shepherd boy took us in search of this Wren was fairly alive with snakes; every step seemed to startle up one or more. Our bare-footed guide soon beat a retreat.

The common Hummer found everywhere was *Trochilus anna*. *T. rufus*, although numerous, was very generally found in or near live-oak groves. In such a grove we found it breeding in numbers April 16. The nests were placed on the under side of the fronds of a large fern which grew luxuriantly in the deep shade.

March 14, a single specimen of *Junco hyemalis* was taken from a flock of seemingly similar birds. When startled they flew too near a house to allow of our taking a second example. *J. h. oregonus* was not seen by us before April 13.

Callipepla californica vallicola, although abundant, was not easily taken because of their fondness for treeing on the cañon side, or racing when on the level. *Aphelocoma californica*, *Melospiza fasciata heermanni*, *Pipilo fuscus crissalis*, *Vireo huttoni*, *Dendroica auduboni*, *Parus inornatus*, *Chama fasciata henshawi*, *Psaltiriparus minimus californicus* were all present in good numbers, as also *Troglodytes ædon parkmanii* on the higher ground almost exclusively. *Sialia mexicana*, breeding March 20, *Melospiza lincolni*, *Polioptila caerulea*, and *Sayornis saya* were none of them common. This was the case also with *Sayor-*

nis nigricans before the migration arrived. *Empidonax difficilis* and *Spinus psaltria* appeared March 18, *S. tristis*, much less common than *psaltria*, on March 20.

A single Robin was shot from the saddle out of a flock of three or four flying over a road on a cañon side. However, as the horse declined to stop for some distance, it was not marked down and could not be found. No more were seen by us.

It not being possible for us to hire the only boat in the town, as it was in constant use as a fisherman, we were not able to do any collecting off shore. Cormorants were abundant, sunning themselves on the piles of an old wharf, but well out of our reach. Scoters in large flocks and many Divers used as a feeding ground the strip of water about one quarter of a mile or less broad between the beach and the seaweed which, growing very long and lying on the surface of the water in dense masses, forms a very fair breakwater along the entire beach at Santa Barbara, the line of seaweed being approximately parallel with the beach line.

Occasionally we saw Scoters sunning themselves on the crest of the beach, and by running our horses so as to head them off managed to take a few. All were *Oidemia perspicillata*.

On foggy mornings, if by chance we could shoot a single Gull, others were soon decoyed in to the fallen bird; in this way, though not caring from such data to hazard an opinion as to their relative abundance, we took *Larus glaucescens*, *L. occidentalis*, and *L. californicus*, and did not consider either species as rare.

A small flock of Gallinules lived in a patch of reeds on the edge of a lagoon into which *Mergus serrator* came rarely. *Cistothorus palustris paludicola*, from lack of proper ground, was also rare.

On the crown of the beach *Otocoris alpestris rubea*, *Anthus pensilvanicus* and *Ægialitis vocifera* were all abundant. *Ægialitis*, we thought we had good reason to believe was breeding, but failed to find a nest. Of the *Ammodrami*, *A. beldingi* was more often taken at or next to the shore line, *A. sandwichensis alaudinus* more inland.

Tachycineta thalassina in abundance, *T. bicolor* sparingly, were seen more frequently at the water's edge than inland, but were found occasionally well up the valley.

All of the foregoing were taken previous to March 24, on

which date we rode to the Ojai Valley not finding any new species; Quails, Jays and Woodpeckers were much more numerous than at Santa Barbara. In the Ojai we were detained by heavy rains one day. The second day, the rain falling heavier than ever, we rode back over a badly washed road; frequent patches of adobe clay proved slippery even for California horses.

After the storm new birds began to arrive. March 30 *Tyrannus verticalis* and *T. vociferans* appeared simultaneously in small scattered flocks, each species keeping a little away from the other. Males and females were taken that day from the same flock. *T. vociferans* passed through before April 22. *T. verticalis* settled down in several places. March 31 our only specimen of *Spizella socialis arizonæ* was taken, as also *Sitta carolinensis aculeata*.

Icterus bullocki, *Turdus aonalaschkæ auduboni*, *Sylvania pusilla pileolata* came April 2, *Stelgidopteryx serripennis* April 4, *Vireo gilvus* April 5, *Helminthophila celata lutescens*, *Dendroica nigrescens*, and *Spinus lawrencei* April 6, *Geothlypis trichas occidentalis* April 7. April 5 our type specimen of *Trochilus violajugulum** was taken. April 10 we first found *Vireo solitarius cassinii* which, very possibly, had up to this date escaped our attention; also on this day, just above the Mission in the mouth of the cañon, our sole *Myiarchus cinerascens*.

Large flocks of *Numenius hudsonicus* came to the mud flats on the 11th, *Recurvirostra americana*, *Totanus melanoleucus*, and *Anas cyanoptera*, all sparingly, on the 19th. *Tringa minutilla* from March 17 to April 4 was common; later on much less so. *Pipilo maculatus megalonyx* April 16, *Petrochelidon lunifrons* April 17, *Ardea candidissima* April 24, completes our list of species taken. April 21 the Shore-birds came in large numbers, as also a few Terns, but as we had packed up for the North we could not preserve skins, and hence did not collect.

More than once during our stay a hot morning was followed by squalls from the north, which on clearing left the peaks of the Coast Range slightly whitened with snow. The fall of temperature in the valley was very sudden and sharp. After such squalls, and on very windy days, *Micropus melanoleucus* came down to the lower lands in numbers.

* Auk, Vol. V, p. 168.

ON THE HIATUS EXISTING BETWEEN THE BREED-
ING RANGES OF THE LOGGERHEAD AND
WHITE-RUMPED SHRIKES.

BY G. H. RAGSDALE.

DURING the past two years I have had much correspondence on this subject. I was drawn into the belief that there must be a gap somewhere by Mr. Nehrling's record of the breeding in Harris County, Texas, of the White-rumped Shrike, when I had never known the birds to remain through the summer in Cook County.

The following observers report "no Shrikes breeding" at their respective stations in Texas: W. W. Westgate, Houston; J. A. Singley, Giddings; R. E. Rachford, Beaumont; H. F. Peters, Bonham. Although I have not detected any Shrike breeding in Cook County, and have copious notes on their departure as late as May, and return as early as July, I have a set of eggs taken in Cook County by Mr. E. C. Davis, who saw a Shrike leave the tree in which the nest was. These eggs agree well with a set I have from Colorado, Texas, three hundred miles southwest of Gainesville, but are larger. Mr. Benners, in the 'Ornithologist and Oölogist' (Vol. XII, p. 165), reports taking the eggs of the Loggerhead Shrike in the vicinity of San Antonio, Texas, but the specimen was evidently *excubitorides*. Mr. J. A. Singley wrote me last season that some one took the eggs of the White-rumped Shrike at Graham, Texas, one hundred miles west of Gainesville. These points I consider on or near the southeastern limit of breeding of *Lanius ludovicianus excubitorides*, in Texas.

Mr. Hardin D. Thweatt of Hickory Plain, Arkansas, while teaching school at West Point on Little Red River, a tributary of White River, Arkansas, made a record of all Shrikes seen, and but few were seen, and that in March, 1887. The only Louisiana record of breeding of the Loggerhead is from Mr. Geo. E. Beyer, of New Orleans. On May 13, 1888, he secured two old and three young, near Franklinton, Lat. 30° 52', from a pine tree near their nest. At Franklinton, May 15, 1887, he secured two adult birds, and was shown the nest in a pine tree, from which a cat

was seen to take the young. On May 29, Mr. Beyer saw a pair at Greensburg, Louisiana, Lat. $30^{\circ} 49'$. On June 5 he shot a pair near Clinton, Louisiana, Lat. $30^{\circ} 52'$, and saw their nest in a pine tree.

It will be remembered that no Shrike was observed by Mr. Beckham at Bayou Sara, Louisiana, but *ludovicianus* was quoted on the authority of Mr. Wederstraudt (Bull. N. O. C., Vol. VII, No. 3, p. 162). Mr. O. P. Hay saw a Shrike at Jackson, Mississippi, "in summer" (Bull. N. O. C., Vol. VII, p. 91). I have shown that the birds return as early as July in Cook County, Texas, and this record only shows, as does Mr. Beckham's, that no Shrike is common in summer in those localities. In 1886, Mr. J. T. Moore of Oxford, Mississippi, reported that he had taken the eggs of both Loggerhead and White-rumped Shrike at Oxford, but that both were very rare. Dr. Rawlings Young of Corinth, Mississippi, reports no Shrikes in that locality in summer. Mr. J. T. Park of Rising Sun, in northwestern Georgia, wrote me that no Shrikes bred there; but Mr. H. B. Bailey has reported the breeding of *Lanius ludovicianus* in Wayne and McIntosh Counties, Georgia, which are on or near the coast.

At Greensboro', Alabama, Dr. Wm. C. Avery, on April 25, 1887, took six eggs of the Loggerhead Shrike from the end of a limb of an old field pine, eight feet from the ground, and saw another nest higher up in a pine tree in the spring of 1888.

Mr. L. M. Loomis reports the Loggerhead as a resident at Chester, South Carolina.

The birds seen by Mr. Fox in Tennessee, and reported in 'The Auk,' Vol. III, p. 317, were probably migrating White-rumps.

I have failed to learn of any Shrike breeding in Tennessee, Kentucky, or Arkansas, Mr. Pindar of Hickman, Kentucky being the only observer to report from that State, and none from Tennessee, and only one from Arkansas. Mr. Goss reports from personal observations the White-rumped Shrikes breeding throughout Kansas.

Mr. O. Widmann reports the Loggerhead as breeding at St. Louis, Missouri, but *bleaching out* in spring and summer, and to the northwest of St. Louis only the White-rumps are reported in summer.

From the foregoing I conclude that the A. O. U. Committee correctly relegated the Loggerhead to the Gulf States, and that it

prefers pine lands for nesting. I also conclude that there is a neutral strip upon which neither form is found during May and June, and further, that about the only way to identify a Shrike of this species is to take it on its breeding grounds during the breeding season.

PICICORVUS COLUMBIANUS (WILS.),
CLARKE'S NUTCRACKER. ITS
NEST AND EGGS, ETC.

BY CAPT. CHARLES E. BENDIRE.

THROUGH the kindness of that indefatigable naturalist, Mr. Denis Gale, of Gold Hill, Colorado, I am enabled to give to the readers of 'The Auk' his observations on the habits of Clarke's Nutcracker during the breeding season, as well as a good pen picture of the nest and eggs, taken by him March 5, 1888, he having, with his usual generosity, presented both to the National Museum collection. Since I described the nest and eggs of this species in Vol. I of the 'Bulletin' of the Nuttall Ornithological Club, July, 1876, page 44, and again more fully in the April and May numbers of the 'Ornithologist and Oölogist,' pages 105-107 and 113-114, no other nest with eggs has been found, as far as I am aware, and the only account I can find of the taking of one since then, which, however, contained young only, is that of Capt. B. F. Goss, of Pewaukee, Wisconsin, published in the 'Bulletin' of the Nuttall Ornithological Club, Vol. VIII, Jan. 1883, pages 44 and 45.

Mr. Gale's notes read as follows: "On Feb. 16, 1888, while passing down a mountain trail, my attention was drawn to the peculiar note of alarm given by this bird, *Picicorvus columbianus* — not unlike that of our Jay or Magpie — which was promptly answered by its companion. I discovered the birds in separate trees, about fifteen yards distant from each other, and probably fifty yards from where I was standing. Upon closer inspection I perceived that both birds had twigs in their bills. They watched each other, and me as well, for perhaps ten min-

utes, when another call-note was exchanged between them, somewhat similar to the first which had arrested my attention. This second note seemed to me to indicate less alarm; there was more of chuckle or derision in it. The twigs the birds had in their bills were dropped nearly simultaneously, and the pair swooped down the mountain side, and were lost to view almost immediately.

"I determined to follow up this clew, and day after day I closely examined every tree and bush within a radius of half a mile of where I first saw the birds. This close scrutiny resulted in the discovery of three skeletons of old nests, which I assigned to this species. Several entire days were spent at this work without once seeing a bird, and I began to despair.

"On March 5, I tried in a new direction, and when about one third of the mountain had been climbed, about a mile distant from my previous operations, I observed a Nutcracker flying high over my head, and this manœuvre was within an hour repeated a second and a third time, the bird seemingly each time coming from the same quarter. This, I felt assured, meant something, and somewhat renewed my hopes of success. I went on steadily with the search, which, to be effectual, I had arranged in this way: I worked up the mountain side, right and left, upon a swath half a mile wide, taking in from thirty to fifty feet of ascent each time. Eventually I came upon the object of my search, about three hundred yards distant from my second starting point, and about two hundred yards higher than the locality where I had first noticed the bird flying over my head. While doing this, he evidently was reconnoitring, and each time, upon making his rounds, passed near the nest, assuring his mate thereby of his watchfulness. As I worked gradually nearer the nest he was not to be seen, and this seeming indifference of the male, and the pertinacity of the female in covering her nest until almost forcibly dislodged, are great odds against even the most energetic collector.

"The nest was placed eight feet from the ground, in a bushy black pine (*Pinus ponderosa?*) which branched out from the ground with a probable spread of fifteen feet. The tree was about twenty feet high. The nest was situated about thirty inches from the main stem, near a bunch of scrub, and firmly saddled on a three-pronged fork of a stout limb three inches in diameter, with smaller ones growing about and around it, so that nothing save

the overthrow of the tree itself could possibly dislodge it. I discovered the female on the nest while on the upper side of the hill, above the nest level. Stepping up within easy reach, the bird seemed to tremble with fear, and slightly snapped her bill, pleading forbearance rather than defiance. Tipping her tail with my hand, she gracefully and noiselessly glided over the edge of the nest, and with closed wings swooped down the mountain side for twenty-five yards or so; then arresting her downward course, with open wings at a right angle, described the peculiar undulating flight of a Flicker (*Colaptes*) for about fifty yards, and alighted upon a tree in the neighborhood. After noting this, and viewing for a moment two beautiful eggs in a snug, compact nest, I hastily withdrew. The second day after, I found one addition, making three eggs in all, which seems to be the full complement for the species. I waited, however, four days later before taking possession. Each subsequent time I disturbed the female from the nest, she repeating the exact manœuvres she did at first. While I was taking the eggs from the nest she watched me from a tree about fifty yards distant, and for the first time gave the alarm as I had the second egg in my hand. After securing the eggs, I moved away a short distance to note proceedings on the part of the birds. The male was flying about some two hundred yards distant. In five or six minutes after I left the nest site the female, with a single stop for half a minute at the foot of the tree, again covered the nest. After watching her a short time, I again approached her, and when within about ten feet of her, she silently flew off, and protracted her flight in the direction the male was last seen to head. I left the place almost frozen, returning the next day to secure the nest complete in position.

“The nest proper is placed on a platform of dry twigs, mostly those of the western juniper (*Juniperus occidentalis*); these average about three sixteenths of an inch in thickness, and vary from eight inches to a foot in length. The twigs, which also help to form the sides of the nest, are deftly wattled together amongst themselves, as well as with some of the smaller lateral branches of the pine limb on which the nest is securely saddled, and are further held together and strengthened with the help of coarse strips of the inner bark of the juniper mixed amongst the twigs and admirably suitable for the purpose. The inner nest is a mass of the latter material, only much finer, the bark having been well

picked and beaten into fibre, and quilted together with the addition of decayed grasses and pine needles, forming an exceedingly snug and warm structure. No hair or feathers of any kind enter into the composition of this nest. The walls of the inner nest are fully one and a half inches thick." Outwardly the nest measures eleven inches in diameter, by seven inches in height. The inner, cup-shaped cavity is four inches wide by three deep. The eggs, three in number, measure $1.37 \times .90$, $1.36 \times .89$, and $1.32 \times .89$ inches. These are elongate ovate in shape, the ground color is a light, delicate, greenish blue, and they are sparsely marked with small, peppery-like spots of grayish brown, mostly about the larger end, and underlying shell markings of grayish lavender. This description applies to the most boldly marked egg of the set, the markings on the remaining two being much fainter and more sparse.

"In the latter part of May, 1888, I was much pleased and interested to find a nest of *Picicorvus columbianus*, in a red spruce tree, about twenty-five feet from the ground, placed close up to the stem of the tree, and on the lee side from our prevailing winds. It was quite bulky, about two thirds the size of our common Colorado Crow's nest, and closely resembling it in make-up and appearance. Its outside was a gathering of sticks and twigs, fastening it in the branches of the tree, several of which were involved. The middle structure was principally composed of the inner bark of the juniper tree. It had accommodated a brood that season. Its value and interest consisted in fixing the identity of the old skeleton nests I had found as belonging to this species beyond a doubt, and altogether they clearly suggest a wider choice of nest sites than the one I sent the National Museum could possibly permit of, by analogy. I discovered altogether five of these old skeletons and two new nests of this season. Four of these occupied similar sites in spruce trees, while three were placed in pines. The nest sent to Washington was the only one *saddled* on a branch away from the main stem. None were over twenty-five feet from the ground, and two I found as low as eight feet up. The majority of sites offered little concealment, but in every case especial care was observed in selecting one affording thorough protection to the nest, and holding it most securely against the assaults of the fierce March winds prevailing in this mountain region. As a suitable and completely hidden

shelter seems to be difficult to find, a more or less partial one is chosen. None of the nests faced the direction of our prevailing winds, and while none were in trees thickly growing together, only one nest was found in what could be termed an isolated tree.

"Five of the sites were within one third of the mountain's height, and two only about one third up. The site of the nest taken containing eggs was at an altitude of about 8500 feet. I do not think that here, in Boulder County, the Clarke's Nutcracker nests much, if any, below this point. It breeds up to 10,500 feet, but at such an altitude fully a month later. The nest found by me was, in my opinion, an early one. These birds feed on beetles and other insects in summer, and they can be seen the year around scavenging about lumber and mining camps, at the foot of the range. Their visits are timed with unerring precision; both they and the Rocky Mountain Jay (*Perisoreus canadensis capitalis*) are on the lookout for the scraps to be found about such places after the dishes are washed, and they seem upon each such occasion to be just in time, and after their feast, more or less satisfactory, according to circumstances, they move off as quickly as they came."

In order to give as full a synopsis as possible of the breeding habits of this interesting species, and as in all probability some of the publications containing the accounts may not be accessible to the majority of the readers of 'The Auk,' I will incorporate the more important portions bearing on the subject in this paper. Capt. B. F. Goss met with these birds in May, 1879, along the western base of the Sangre de Christo Mountains, a few miles southeast of Fort Garland, Colorado. He writes as follows in the 'Bulletin' of the Nuttall Ornithological Club, Vol. VIII, Jan., 1883, pages 44 and 45:

"Clarke's Crow is a common resident of the region described, but has a higher range than Maximilian's Jay. I found it most abundant in the mountain valleys, above the foot hills. In that dry climate the trees on the sunny exposure of the valleys are dwarfed, scattering, and interspersed with thick bunches of bushes, while the opposite side, looking northward, is covered with a heavy growth of timber. It was in and around such timber that I found these birds, and there I looked diligently for their nests. Many times they showed great concern and watched me closely, peering down and scolding from the thick foliage overhead. I thought their nest must be near, and searched everywhere in the neighborhood, even climbing to the tops of high trees; but I have no doubt

now that their nests were across the valley, half a mile away. I spent more than two weeks in this fruitless search, returning every night to camp, tired and disappointed. Any one who has tramped over mountains, in the light air of 9000 feet elevation, will understand how exhausting such labor is; but I particularly wished to get the eggs of this bird, was sure they were nesting in the neighborhood, and did not like to give it up. One evening, after a particularly hard day's work, as I sat by my campfire, looking up the valley, one of these birds left the high timber and flew across to the other side. Its direct and silent flight suggested that it might be going to its nest, and that I had been looking in the wrong locality. Accordingly, with renewed hope, I started early next morning to the hill where I had seen it go. After climbing over the rocks and through the bushes for some time I sat down to rest, when I noticed something on a tree about thirty feet away that looked more like a squirrel's nest than anything else. On closer inspection, however, I saw that it was a bird's nest, and climbing up a short distance, was delighted to find a Clarke's Crow sitting on its nest. She sat very close, only leaving when touched by my hand. The nest was built near the end of a horizontal limb, about ten feet from the ground, in an open, conspicuous situation. It was bulky, coarsely constructed, and very deeply hollowed, the bird when on it showing only part of her bill and tail, pointing almost directly upward. She was soon joined by her mate, when, after hopping about in a listless manner for a few minutes, both disappeared. They were silent when near their nest, but noisy enough elsewhere. On further search I found several old nests and one new one, apparently abandoned. All were similar in construction and situation to the one described, and evidently belonged to the same species. The nest with young was found May 21. From finding these nests, and from other observations made, I am satisfied that Clarke's Crow breeds in open, warm situations, preferring steep hillsides; had I known this earlier I believe that I should have found more of their nests."

My personal observations of this species were published most fully in the April and May numbers of the *Ornithologist and Oölogist*, Vol. VII, 1882, and extracts therefrom read as follows:

"For some reason not easily explained I had come to an almost positive conclusion that Clarke's Crow nested in hollow trees, and as they act in many respects like certain of our Woodpeckers and frequented the juniper groves fully as much as the pine timber this seemed plausible enough* The finding of several young birds of this species but a few days out of their nest on May 5, 1875, sitting on the branches of a large

* It must be remembered that at that time nothing positive was known about the breeding habits of Clarke's Nutcracker, excepting Mr. J. K. Lord's account, that in the vicinity of Fort Colville, Washington Territory, they bred in the tops of the tallest pine trees, a statement which I doubted and rather favored Mr. R. Ridgway's surmise of their nesting in hollow trees or stumps.

juniper, in the trunk of which I found a cavity filled with rubbish, and which evidently had been used as a nesting site by either a Sparrowhawk or Red-shafted Flicker the previous season further confirmed me in this view, and caused me to jump at the conclusion that the young birds I saw on that tree clamoring for food had been raised in this very nest. Judging from their size they had left it about a week previously, and I concluded that in order to find eggs I must commence looking for them at least a month earlier or about April 1st, and gave up further search for the season. I waited impatiently for the opening of the season of 1876, which was a very late one. To make sure I started on a systematic search for the nests of these birds as early as March 20th, the snow being at the time from two to four feet deep in the localities frequented by them. During the next four weeks I made at least a dozen trips to the haunts of these birds, and I believe I examined every hollow tree and woodpecker hole known to me within a radius of eight miles of the post, the trees examined being mostly junipers. As I found nothing in them, other species of birds not having commenced nesting yet, and being positive that the Clarke's Crow was then breeding somewhere in the immediate vicinity, from seeing a few about constantly, I commenced to examine the pine trees growing amongst the junipers on the outskirts of the forest proper. I saw nothing, as I thought, which might be taken for a bird's nest in any of the pines (*Pinus ponderosa*), but noticed now and then a round bunch or ball, composed seemingly out of the long hypnum moss taken from the trees themselves, in some of them, which I supposed to be squirrels' nests, particularly as the little Fremont's chickaree (*Sciurus hudsonicus fremonti*, Allen) is quite commonly found in this vicinity. As the majority of these quasi squirrels' nests were by no means easily got at, and having tried to start their occupants with sticks, stones and now and then even with a load of shot and failed invariably to bring anything to light, I ceased to trouble myself any further about them, and more puzzled than ever was about to give up the search when on April 22d I saw a Clarke's Crow flying quietly and silently out of a large pine tree about fifty yards in front of me. This tree had a rather bushy top, was full of limbs almost from the base and easy to climb. As I could not see into the top I climbed the tree, failing to find any sign of a nest therein, and completely disgusted I was preparing to descend again when I noticed one of the supposed squirrel's nests near the extremity of one of the larger limbs about the centre of the tree and about twenty-five feet from the ground, and setting therein, in plain view from above, not a squirrel but a veritable Clarke's Crow.

Well, so I had found their nest at last, quite unexpectedly, and not any too soon, either. As it was, I was almost too late, for the nest contained a young bird just hatched and two eggs with the shells already chipped and on the point of hatching. However, as even damaged specimens, particularly rare ones like these were, are better than none, I took them along but left the young bird in the nest. The parent bird allowed me to almost lay my hand on her before she fluttered off, and

I had scarcely gotten two feet from the nest before she was on it again. During the whole time she remained perfectly silent. Not half an hour after finding the first, I had found a second nest which contained three young birds perhaps a week old. These I sacrificed to science, making a skin of one and preserving the other two in alcohol. They are now, as well as the nest, deposited in the National Museum at Washington, D. C. Between April 24th and 30th, '76, I found at least a dozen more nests; these, however, contained all young in different stages of growth, some of them nearly large enough to leave the nest. Each of these contained but three young.

"In the spring of '77 I commenced my search on March 15th, and although I looked carefully and repeatedly over the entire ground gone over the year before, and over new localities as well, I failed to see a single bird where on the previous season they had been found comparatively plenty. Puzzled to account for their absence I looked around for the possible cause of it, and knowing that these birds live almost exclusively on the seeds of the pine (in fact, all the specimens I have ever dissected, shot mostly in the winter months, however, had their crops filled with these seeds and nothing else), I naturally first examined the trees for their principal food supply and found that not a tree in a hundred bore ripe cones, and although there were many green ones I found none mature. This fact, then, accounted fully and plainly for their absence. During the next winter, '77-78, I found a few of these birds occupying their old haunts again, but not nearly as many as in previous seasons, and I commenced my search as usual again in the latter part of March. On April 4, 1878, I found my first nest. It was placed near the extremity of a small limb, about forty feet from the ground, very hard to get at, and in trying to pull the limb down somewhat with a rope so that it could be reached from a lower limb it broke and the eggs were thrown out of the nest. This also contained three eggs, and incubation, at this early date even, was far advanced.

"On April 8th, '78, I found another nest containing two eggs with good-sized embryos. This was likewise placed in a pine tree and near the extremity of one of the limbs, about sixteen feet from the ground. The only way this nest could be got at was by leaning a pole against the limbs of the tree and climbing to the nest by it, in which, after a good deal of labor and trouble, I finally succeeded.

"The type specimens obtained by me measured respectively 1.22×0.95 inches and 1.20×0.90 inches. The ground color of these eggs is a light grayish green and they are irregularly spotted and blotched with a deeper shade of gray, principally about the larger end. On the smaller egg the spots are finer and more evenly distributed. The last two eggs obtained are somewhat larger, measuring 1.26×0.95 and 1.30×0.92 inches. Their markings although somewhat finer are about the same as in the type specimens. They are elongated, oval in shape and considerably pointed at the smaller end. The second set of eggs found by me, which, unfortunately, were broken, were more of a greenish ground color and also

much heavier spotted. There is no doubt that there will be considerable variation found when a number of sets of eggs of this bird are placed together for examination. That this species should only lay but three eggs to the set seems also rather strange, but as far as my personal observations go, such is the fact.

"The nests, although looking quite small when viewed from below, are rather bulky affairs after all when closely examined, their base consisting of a platform of small sticks and twigs, mostly of the white sage, which are laid on a sufficiently strong pine branch and generally as far out as possible. On this the nest proper is placed, which is composed of dry grasses, vegetable fibres, hypnum moss, and the fine inner bark of the western juniper (*Juniperus occidentalis*.) These various materials are well incorporated together and fastened to the branch and pine needles on which it is placed, and makes a warm and comfortable structure. The outer diameter of the only nest measured by me (that is, the compact portion of it) was eight and one-half inches; inner diameter, four and one-half inches; depth inside, three and one-half inches; outside, five inches. As a rule, the nests were well concealed from view below, and almost invariably placed on or near the extremity of a live limb at various heights from the ground.

"Isolated clumps of pine trees growing near the edges of the forests or mountain valleys, as well as among juniper or mountain mahogany groves, seemed to be the favorite localities frequented by these birds during the breeding season; in fact, I have scarcely ever noticed them any distance in the forest unless there were frequent openings, small valleys, etc., interspersed with timber. These birds appear to raise but one brood during the season, . . . and in the vicinity of Fort Harney they disappear about the end of May or early in June, gathering about that time in considerable flocks, and are not seen again till about October. They probably spend the summer months in the higher mountain regions in the vicinity.

"At all other times a social, inquisitive and exceedingly noisy bird, the Clarke's Crow during the breeding season is exactly the reverse. In vain one may watch and listen to hear their usual and by no means musical call note, "chaar, chaar," which so easily betrays their presence at other times. . . . Their whole character seems to have undergone a sudden radical transformation. They remain perfectly silent, seem to hide and would scarcely be noticed, even where comparatively abundant, unless closely looked after."

To this account I have little to add of interest. In the matter of food, Clarke's Crow, or Nutcracker, as now called, is omnivorous, certainly nothing at all eatable comes amiss. While during the winter months their food, perhaps from necessity, consists principally, if not altogether, of the seeds of various species of coniferous trees—the extracting of these entailing considerable strength and labor, but which is facilitated to a certain extent with

the help of their strong claws and sharp bill, admirably adapted to the purpose,—their bill of fare for the greater part of the year is quite varied, including berries of different species, insects of all kinds, as well as their larvæ, butterflies, which they catch very dexterously on the wing, and especially grasshoppers and the large, wingless, blackish brown crickets (*Anabus simplex*), which in some seasons are to be found overrunning large sections of country in countless numbers, devouring everything green and eatable in their way. These repulsive looking objects are in turn preyed on by numerous species of mammals, as well as birds and fishes, and even the Pah-Utes or Snakes, as well as the various tribes of Digger Indians inhabiting the Great Basin, consider these selfsame crickets quite a delicacy, and yearly gather large quantities of them, which, after being roasted and dried, are stored away in mats for winter use. I have more than once observed flocks of Clarke's Nutcrackers of considerable size scattered out over the sagebrush-covered mesas (table-lands) near the foothills of the Blue Mountains in Oregon, actively and industriously engaged in catching these crickets, and apparently enjoying them. At such times they are especially noisy, calling each other constantly, and having a jolly good time generally.

The stomachs of all the nestlings examined by me, however, contained only an oily cream-colored pasty mass, composed exclusively of the hulled seeds of the pine or other conifers, easily recognized by its not unpleasant odor, and this seems to be the only food they are fed with while in the nest.

Picicorvus columbianus, while occasionally rather tame and unsuspicious, and an inquisitive bird at all times, is usually shy and not easily approached within shooting distance. Now and then I have seen an individual, bolder than the rest, alight amongst my chickens in the backyard and feed with them, but such occurrences are rather rare and infrequent. In the summer they spend considerable of their time on the ground in search of food. To the hunters and trappers in Oregon the bird is known under various names, such as Meatbird, Moosebird, and Camp-robber, but the same names are equally applied to the Oregon Jay (*Perisoreus canadensis obscurus*), which has much the same habits. In winter the two species are often found associated together. At Fort Harney, Oregon, the breeding range of Clarke's Nutcracker extends as low down as 5200 feet altitude, and I am

satisfied that it breeds at about the same elevation in the vicinity of Fort Klamath, Oregon, where, however, these birds were rather scarce.

An abundant and suitable food supply has unquestionably a great deal to do with the movements of these birds, and while they might be called resident in most places where they are found, they, like many other species usually considered residents throughout the year, are more or less migratory. Their range northward is very extended, specimens having been obtained on the Putnam River, Alaska, close to the Arctic Circle and to the tree limit.

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SUMMER BIRDS OF EASTLAND COUNTY, TEXAS.

BY E. M. HASBROUCK.

EASTLAND County, Texas, is situated between latitudes 32°-33° and longitudes 98°-99° or a little northeast of the geographical centre, and is known throughout the country as the poorest and most unattractive portion of the State. The elevation varies from twelve hundred to sixteen hundred feet, and the entire County, as well as a number of those lying to the east, is one series of terraces, beginning a little west of Cisco and extending through Erath and Bosque Counties, until the valley of the Brazos is reached. Water is extremely scarce and the timber, although pretty generally distributed, is almost entirely of oak, and comprises four species, known as post-oak, bur-oak, black jack, and 'shinnery.' This last is a short, stunted bush, frequently covering hundreds of acres and rarely exceeding four or five feet in height.

The observations recorded were made while accompanying the Geological Survey, and while this list of sixty species is by no means complete, still it will, I hope, be of some value in showing the partial distribution of certain peculiar and rare forms. Several species of Hawks, which were numerous, I was unable to secure and identify, as my time was not my own.

1. *Ardea herodias*. GREAT BLUE HERON. — Present, but rare from scarcity of water; two individuals seen. A number were observed on

Pecan Bayou near Brownwood in Brown County some sixty miles south, but this has a permanent flow of water the year round.

2. *Bartramia longicauda*. BARTRAMIAN SANDPIPER. — Common throughout the prairie and upland regions. Found singly or in flocks of a dozen or more. Their abundance was particularly noticeable at night when they could be heard calling to each other while flying overhead.

3. *Actitis macularia*. SPOTTED SANDPIPER. — As rare as *Ardea herodias*; but two observed on the tanks or cattle ponds.

4. *Ægialitis vocifera*. KILLDEER. — Extremely common, found throughout the country in flocks and particularly abundant near the tanks.

5. *Colinus virginianus texanus*. TEXAN BOB-WHITE. — One of the commonest of the birds; I have seldom seen Quail more plentiful or in larger flocks than through this section of country, and in this respect it is a perfect sportsman's paradise.

6. *Zenaidura macroura*. MOURNING DOVE. — The commonest of Texas birds; breeds everywhere.

7. *Cathartes aura*. TURKEY BUZZARD. — An extremely common resident, as it is throughout the southern and western part of the continent.

8. *Catharista atrata*. BLACK VULTURE. — Equally abundant with the preceding, and more so in certain localities, especially in the southern part of the County.

9. *Circus hudsonius*. MARSH HAWK. — Not common, a few seen at various localities throughout the County.

10. *Accipiter cooperi*. COOPER'S HAWK. — The rarest of the Hawks, only three noted during the trip.

11. *Buteo lineatus*. RED-SHOULDERED HAWK. — Fairly abundant, and distributed throughout the County.

12. *Buteo swainsoni*. SWAINSON'S HAWK. — Tolerably common, of a roving disposition, and like the foregoing, distributed throughout the County.

13. *Haliaeetus leucocephalus*. BALD EAGLE. — A single one was observed hovering around the Comanche Mountains near Rising Star on Nov. 11.

14. *Falco sparverius*. SPARROW HAWK. — The commonest of the Hawks, in fact I have never seen a locality where they are so numerous. Specimens collected appear much richer in color than those from more northern localities.

15. *Syrnium nebulosum*. BARRED OWL. — Common everywhere along the creeks and river bottoms, and occasionally found on the uplands.

16. *Megascops asio mcallii*. TEXAS SCREECH OWL. — Common everywhere, and as bold and daring as others of the genus. I remember one occasion when I had a fine string of Teal hanging in camp. I was awakened by the hooting of one of these birds on a limb directly over my head and but a few feet above me; securing him and returning to rest, I had no sooner rolled up in my blankets than his perch was taken by another which, it is needless to say, followed the fate of the first.

17. *Bubo virginianus subarcticus*. WESTERN HORNED OWL.—Common; their hootings may be heard regularly every night, and in some localities as many as a dozen or more are found together. Their notes are distinguishable at once from those of *Bubo virginianus* proper, and vary greatly in intensity of tone with individuals.

18. *Geococcyx californianus*. ROAD-RUNNER.—This bird, while tolerably abundant in adjacent Counties and even common in some, is quite rare here, owing to the unfitness of the country for them. Not over a dozen were seen, and but three secured.

19. *Coccyzus americanus*. YELLOW-BILLED CUCKOO.—Fairly abundant, the 'natives' calling it 'Rain Crow,' and asserting that it is an infallible foreteller of approaching storms.

20. *Ceryle alcyon*. KINGFISHER.—A few individuals seen, but as rare as the water upon which they depend for their food supply.

21. *Dryobates villosus*. Hairy WOODPECKER.—Common, and usually found in company with any of the following Woodpeckers.

22. *Dryobates pubescens*. Downy WOODPECKER.—Tolerably common; generally found in company with *scalaris*.

23. *Dryobates scalaris*. TEXAN WOODPECKER.—This handsome little Woodpecker is abundantly distributed throughout the whole of central Texas; I have found it common in over a dozen Counties.

24. *Ceophloeus pileatus*. PILEATED WOODPECKER.—This species is fairly abundant throughout the various Counties of central and western Texas that I have visited; they seldom visit the dry upland, regions although they at times do so, preferring the more densely wooded bottom lands of the Leon and Satana Rivers.

25. *Melanerpes erythrocephalus*. RED-HEADED WOODPECKER.—Abundant throughout this and adjacent Counties.

26. *Melanerpes carolinus*. RED-BELLIED WOODPECKER.—More common if anything than the preceding. Specimens from this particular locality appear smaller and less richly colored than those from the eastern United States.

27. *Melanerpes aurifrons*. GOLDEN-FRONTED WOODPECKER.—A bird of strictly local occurrence. In the single locality in Eastland County where they are found, they may be said to be fairly common, but outside of an area of twenty-five square miles they are unknown in the County. This particular region begins at a place known as Merrill's on the Cisco and Brownwood road ten miles south of Cisco, and runs in a northeasterly direction to the Carbon and Rising Star road, a distance of about six miles, then follows this with comparative closeness for about five miles, then back to Merrill's, forming an irregularly triangular tract of country. The statement that they are not found outside of this district may at first appear strange, but when I state that I have surveyed entirely around it, and through it in several directions, it is evident that I have substantial reasons for the assertion. This section of country certainly presents peculiar characteristics; the timber is entirely of post-oak, and the ground more or less thickly covered with 'shinnery,' and differs from the surrounding

country in that the tops of the trees were affected some years ago with a blight, and now this entire area is one mass of dead-topped trees, and this is what apparently suits the present species. They have a peculiar habit of perching for many minutes in these tops, silent and motionless, that at once distinguishes them from their near relative *M. carolinus*, and although the two are frequently found together in the same tree, a little practice will suffice to separate them at a glance. Their note is peculiar, combining the 'chirp, chirp' of *carolinus* with a certain shrillness and accent of their own, while the call note, either flying or at rest, is similar to that of *M. erythrocephalus* and at the same time not unlike that of *Colaptes auratus*. While their notes once learned are readily recognized, still it takes not a little practice to distinguish between a Red-head in one tree and the Golden-front in the next, or between a Golden-front and a Flicker when both are on the opposite side of a ravine and hidden from view; and I have more than once shot *carolinus* even when morally certain it was what I wanted. The range of this bird is given as "Valley of the Lower Rio Grande, eastern Mexico and southern Texas"; I therefore have the pleasure of extending its range some hundreds of miles.

28. *Colaptes auratus*. FLICKER. — Common everywhere, and almost invariably found in company with the following.

29. *Colaptes cafer*. RED-SHAFTED FLICKER. — Common but extremely shy. Among those taken was one of that peculiar form described some years ago as *hybridus* (now ignored), combining the characters of both species.

30. *Phalaenoptilus nuttalli niditus*. HOARY POOR-WILL. — Central Texas may be truly said to be the home of this bird; I doubt if any of this family are more abundant in any locality. Although seldom seen by daylight unless flushed from their retreat, no sooner does darkness settle down than hundreds may be heard calling from every direction. Their notes when heard from a distance are a plain, 'poorwill, poorwill,' but on close approach are as plainly tri-syllabic as those of the male Quail in spring, and are a perfect 'Will-whip-er-will-whip-er,' with a slight pause after the 'will,' which also bears the accent, and with the final syllable just audible.

31. *Chordeiles virginianus henryi*. WESTERN NIGHTHAWK. — Very common throughout the central part of the State, and on the prairies at dusk dozens may be seen skimming over the ground in pursuit of moths.

32. *Milvulus forficatus*. SCISSOR-TAILED FLYCATCHER. — Extremely abundant; found everywhere, more especially on the mezquite prairies and around the clearings of the settlers. Breeds everywhere and as conspicuously as does our Kingbird.

33. *Contopus richardsoni*. WESTERN WOOD PEWEE. — Rare; more abundant further south in Brown and Lampasas Counties.

34. *Empidonax flaviventris*. YELLOW-BELLIED FLYCATCHER. — But one observed; taken in the Leon River bottom Sept. 4, 1888.

35. *Cyanocitta cristata*. BLUE JAY. — Extremely rare; but two observed.

36. *Corvus americanus*. COMMON CROW. — Abundant. Specimens taken are much smaller than those from the East.

37. *Icterus galbula*. BALTIMORE ORIOLE. — Rare; but four specimens observed.

38. *Chondestes grammacus strigatus*. WESTERN LARK SPARROW. — Extremely common everywhere in flocks of from a dozen to fifty.

39. *Amphispiza bilineata*. BLACK-THROATED SPARROW. — I saw these birds but once and then only a small company of perhaps fifty individuals on a chaparral hill. They were extremely shy and it was with difficulty I was able to secure some.

40. *Peucæa cassini*. CASSIN'S SPARROW. — Rare; but two specimens taken, on Sept. 3 and 4, respectively.

41. *Melospiza fasciata montana*. MOUNTAIN SONG SPARROW. — Rare in some localities, but extremely common in others, especially along the water courses.

42. *Cardinalis cardinalis*. CARDINAL. — Common everywhere throughout the country in the vicinity of water.

43. *Passerina ciris*. PAINTED BUNTING. — Very rare; not more than half a dozen observed.

44. *Spiza americana*. DICKCISSEL. — One specimen taken Sept. 3, 1888.

45. *Piranga rubra*. SUMMER TANAGER. — Fairly abundant along the water courses, not observed elsewhere.

46. *Lanius ludovicianus excubitorides*. WHITE-RUMPED SHRIKE. — Abundant throughout this and adjacent Counties.

47. *Vireo bellii*. BELL'S VIREO. — Common along the streams, unknown on the uplands.

48. *Dendroica æstiva*. YELLOW WARBLER. — Not common; some half dozen were observed during the latter part of August and first of September.

49. *Anthus pensilvanicus*. AMERICAN TITLARK. — Common throughout the prairie regions and frequently seen in the clearings.

50. *Mimus polyglottos*. MOCKINGBIRD. — Fairly abundant and pretty generally distributed.

51. *Catherpes mexicanus conspersus*. CANON WREN. — I have not found this bird in Eastland County, but further east and in nearly the same latitude I found a number of them in 1887 at Meridian in Bosque County, at the 'Bee rocks.'*

52. *Thryothorus ludovicianus*. CAROLINA WREN. — Tolerably common along the water courses, especially the Leon and Satana Rivers, Copperas, Rush, and Palo Pinto Creeks.

53. *Thryothorus bewickii bairdi*. BAIRD'S WREN. — Very abundant throughout the County; I was extremely surprised to hear them frequently sing very similarly to some of our Warblers, and often searched diligently for a Warbler before discovering the author of the song. It was such a

*See 'Scientific American,' April 28, 1888, p. 263.

strange departure from the general run of Wren songs that it was not until I had been repeatedly fooled that I finally accepted it as a case of 'truth stranger than fiction.'

54. *Certhia familiaris americana*. BROWN CREEPER. — A single individual observed at Cisco.

55. *Sitta carolinensis*. WHITE-BELLIED NUTHATCH. — Fairly abundant everywhere.

56. *Parus atricristatus*. BLACK-CRESTED TITMOUSE. — Extremely common throughout the County; not distinguishable by note or habits from *bicolor*, but conspicuous for the black crest plainly visible when close by.

57. *Parus carolinensis agilis*. PLUMBEOUS TITMOUSE. — It was with pleasure that I found Mr. Sennett's variety in this locality and fairly common. Those mentioned by him from southwestern Texas were taken some distance from this locality, thus giving me the pleasure of extending its range some distance north and east.

58. *Polioptila cærulea*. BLUE-GRAY GNATCATCHER. — Rare. A few observed along the Leon and Satana Rivers.

59. *Sialia sialis*. BLUEBIRD. — One of the commonest of Texas birds, seen everywhere.

A BIRD WAVE.

BY PHILIP COX.

EARLY one morning in April, 1885, I started from Newcastle, New Brunswick, for a day's duck shooting on the Miramichi River, which was then free of ice. Snow was falling when I left my house, the tumbling flakes forming a strange contrast with the blossoms, bursting buds, and catkins of the trees and shrubs. Presently birds were seen flying eastward, and upon looking upward, through the snow, which was by this time falling thick and fast, I saw hundreds of Robins (*Merula migratoria*), Song Sparrows (*Melospiza fasciata*), and Juncos (*Junco hyemalis*) mingled together in an unbroken column and passing noiselessly on. Some of the birds were only a few feet above the tops of the tallest trees, while others were higher up, the column extending so far skyward that the topmost line could with difficulty be outlined amid the falling flakes. The width of the column—from flank to flank—appeared to average about twenty-five yards.

Outside of these flanks few birds were to be seen — either toward the centre of the river, or over the meadow through which I was walking; the bulk were massed in this narrow column and kept directly over the margin of the shore, apparently guided by the line of strong contrast between the whitened meadow and the dark waters of the river. They moved on in perfect silence, save for the flutter of the myriad wings, —not a note was heard from them. Their flight was slow and suggested weariness, but they displayed no inclination to rest, though the tree-tops were thrust so temptingly toward them. However, in about half an hour from the time when they were first observed some individuals showed a disposition to halt. An occasional Song Sparrow or Junco would alight on the top of a tall tree, and after remaining at rest for a few seconds — never longer than half a minute — would grow uneasy and utter a rather faint cry or chirp. This call would be answered by one or more of those on the wing, and then the loiterer would rise and join them.

The storm increasing, I abandoned the idea of looking for Ducks that day, and seeking the refuge of an adjacent house, for more than two hours I watched this bird wave as it rolled along. There was no gap, no cessation, neither was there deviation from the line of the river bank. As the time passed the smaller birds displayed evidence of growing more and more weary. Increased numbers alighted, and these took longer rests, and made more energetic demands for a general halt. About eight o'clock, and as if by the command of a leader, or by magic, the moving host vanished.

Previous to this morning only an occasional early bird of these spring migrants had been observed, but now as I returned homeward I found every bush and fence swarming with birds. As snow had fallen to the depth of some four or five inches, little food could be obtained, and by noon great flocks had gathered in the farmyards, and that afternoon many a kind hand strewed crumbs and seeds upon the snow for these little friends — heralds of warm days and smiling fields.

How was this wave formed? What brought this throng of birds together? I cannot think that they had wintered within a limited area and begun the movement northward at the same hour. I am inclined to the opinion that such flocks are comparatively small at the start, and increase by attracting similar small com-

panies as they move along. Often, in the early spring, I hear on soft mild evenings, faint bird calls from the sky, which are answered from bush and tree, and these, in my opinion, are the trumpeters who call together the winged armies of the air.

ON THE SPECIFIC IDENTITY OF *BUTEO BRACHYURUS* AND *BUTEO FULIGINOSUS*, WITH
ADDITIONAL RECORDS OF THEIR
OCCURRENCE IN FLORIDA.

BY W. E. D. SCOTT.

On the 16th of March, 1889, near Tarpon Springs, I found a pair of Hawks just starting to build a nest. The locality was on the edge of a 'hammock,' and the nest, the foundation of which was finished, was in a gum tree some forty feet from the ground. *Both* birds were seen in the act of placing additional material on the structure. As the birds were rare, and I could not risk their being killed or driven away, with the aid of a native hunter both were secured, though before killing them I was certain of their identity.

The female, No. 6392 of my collection, is *Butco brachyurus* and the male, No. 6391, is a typical example in very fine, full plumage of what has heretofore been called *Butco fuliginosus*. Therefore the *Buteo fuliginosus* of Sclater must henceforth be considered as a synonym of *Buteo brachyurus* of Vieillot.

It seems probable that the *adult* birds vary in color with sex, and that the bird known as *B. brachyurus* is the female, and that called *B. fuliginosus* the male. I am further convinced of this by several facts that have come under my observation. Since killing the pair of birds spoken of, I have seen *two fuliginosus* accompanying a *brachyurus* and going through all the manœuvres peculiar to the pairing season. Again, Mr. J. W. Atkins, writing me in regard to some birds he kindly secured for me from A. Lechevallier, says: "Unfortunately there is but *one fuliginosus* in the box. . . . The box also contains a Hawk that Lechevallier shot *in company* with a *black hawk*, and be-

lieves it to be a *young female* of that species." This was written to me *before* I secured the pair mated and building, and neither Mr. Atkins nor Lechevallier know up to this time, April 22, of my observations of March 16.

The bird alluded to by Mr. Atkins is before me. It is 3216 of my collection, and has been examined by Mr. J. A. Allen, who pronounces it *Buteo brachyurus*. It was taken, as before stated, by A. Lechevallier at Chatham Bay, Florida, November 12, 1888, in company with a *black hawk*, presumably what has been called *Buteo fuliginosus*, though I have not seen the bird. I have also before me three examples from Florida, that have not yet been recorded, of the so-called *Buteo fuliginosus*. No. 3215 is a male, young of the year, and was taken at Miami, Florida, on October 11, 1883, by A. Lechevallier. No. 3225 is an adult male taken on February 2, 1889, at Chatham Bay, Florida, by the same collector. No. 3228 is without a sex mark, but is evidently a young bird of the year, and was taken near the source of the Caloosahatchie River by Mr. J. F. Menge, of Fort Myers, Florida. In *size* and *color* No. 3228 exactly corresponds with No. 3215, a male, young of the year. Therefore I am inclined to believe that the color of the adult birds will be found to be correlated with the sex. I wish to express to Mr. J. W. Atkins, of Key West, my thanks for his kindness in procuring me five of the seven *Buteo brachyurus* that have come into my possession.

The observation already recorded in 'The Auk,' Vol. V, p. 185, and other records here given, lead to the conclusion that this species is of regular occurrence on the Gulf coast of Florida at least as far north as the vicinity of Tarpon Springs, and that it breeds regularly though rarely in this region, there can be no doubt. The birds that have been met with in the immediate vicinity of Tarpon Springs have usually been seen in pairs, and once three were observed together. During March and April, 1888, within a radius of ten miles of the town in question, there were observed by me, on March 17 a single bird, on April 6 a pair, on April 10 a pair, these last two pairs probably the same individuals. On two other days in late March and April, and several times in May, 1888, I saw pairs of Hawks that were certainly the birds in question. They were always very shy and wary, and difficult to approach in any way. About two hundred yards in the open

was as near as one could generally approach. They frequented the vicinity of hammocks, and their habits, except the extreme shyness, appeared much like those of the common Red-shouldered Hawk of this region. The female, No. 6392, of the pair spoken of as beginning to build had eggs with the yolks almost developed, and would have laid within a week. From the appearance of the ovary and oviduct I believe that three eggs would have been laid.

A SUMMARY OF OBSERVATIONS ON THE BIRDS OF THE GULF COAST OF FLORIDA.

BY W. E. D. SCOTT.

(Continued from p. 160.)

Colinus virginianus floridanus. FLORIDA BOB-WHITE. — This species is abundant in the vicinity of Tarpon Springs, and breeds in numbers in early April. At least two broods are raised, for I have found birds but a few days old in the first week of July. As to the affinity of the form here with true *cubanensis* I quote from a recent letter received from Mr. J. A. Allen who kindly examined, at my request, a large series of the Quails from the vicinity of Tarpon Springs. He says: "None of the Quails very nearly approach *C. v. cubanensis*, which has the black extending more or less irregularly over the whole breast and onto the upper abdomen, and much chestnut on the flanks, and the bill rather small. The black is not so much confined to a well defined jugular band as in your specimens. The females are also quite different from any in your lot. Your birds seem to be all extreme (typical) *floridanus*, except the two females, 3226 and 3227, which lean a little toward *virginianus*, as do other East Coast specimens I have seen."

The two females referred to by Mr. Allen are from Miami, Florida, and all the rest of the series, some forty in number, are from the vicinity of Tarpon Springs.

Mr. Atkins says that the birds were only occasional in the immediate vicinity of Punta Rassa though abundant a few miles back in the country.

Colinus virginianus cubanensis. CUBAN BOB-WHITE. — Mr. Atkins procured a Quail, the only one he has taken so far on the Island of Key West, on July 5, 1888. It is very different from any of the Quails already noticed from about Tarpon Springs, and can only be referred to this subspecies. It is an adult male, and is No. 6086 of my collection. My

thanks are due to Mr. Atkins for kindly sending me the bird in question. Mr. Atkins further remarks that Quail seem almost unknown to the inhabitants of Key West and that the only additional records he has made there, are "one seen and another heard on May 11, 1888. One seen on May 22, 1888."

Meleagris gallopavo. WILD TURKEY. — This species is still common at most points on the Gulf coast, and is to be seen frequently in the markets of the towns. The breeding season begins about the last week in February, and but one brood seems to be reared.

Columba leucocephala. WHITE-CROWNED PIGEON. — A regular summer resident at Key West and vicinity, and Mr. Atkins also took it on one occasion at Punta Rassa (see Auk, Vol. V, p. 185). Though a regular summer resident it seems not at all common at Key West, though quite abundant on neighboring keys in July, August, and September. Mr. Atkins says that they arrive at Key West from May 1 to 15, and remain till November.

Zenaidura macroura. MOURNING DOVE. — Abundant resident, and breeds throughout the area under consideration. Mr. Atkins has observed it throughout the summer, though rarely, at Key West.

Columbigallina passerina. GROUND DOVE. — Common resident and breeds at all points on the Gulf coast where observations have been made. Also resident at Key West and breeds in numbers (J. W. Atkins).

Melopelia leucoptera. WHITE-WINGED DOVE. — Casual or accidental at Key West. One taken at Key West November 14, 1888, by Mr. J. W. Atkins (see Auk, Vol. VI, April, 1889, p. 160).

Geotrygon montana. RUDDY QUAIL-DOVE. — Apparently accidental at Key West. One taken by a gunner at Key West December 8, 1888—J. W. Atkins (see Auk, Vol. VI, April, 1889, pp. 160, 161).

Geotrygon martinica. KEY WEST QUAIL-DOVE. — This species must be of rare occurrence on the island of Key West, for during the two years Mr. Atkins has spent at that point the bird in question has not come under his observation.

Cathartes aura. TURKEY VULTURE. — Common resident. Breeds.

Catharista atrata. BLACK VULTURE. — Equally common with the last. Breeds. In early March, 1876, in Sumpter County, I found this species breeding. The young in this case were already several days old. They were two in number, which, I believe, is the regular complement. The nest, if such it may be called, was only a slight depression in the ground, the location being surrounded by a heavy growth of 'saw palmettos.'

Elanoides forficatus. SWALLOW-TAILED KITE. — A common migrant and summer resident in favorable localities. These are hammocks, particularly such as are in the vicinity of streams. I have never observed the birds in winter about Tarpon Springs, but they appear early in March and remain, though they are not common just here, till October. They breed in this vicinity early in April. Mr. Atkins has observed the species at Punta Rassa, August 25, 1886, and also at Key West, August 20, 1888. He says further in regard to the birds, "I have another taken by Lechevallier near Miami, where he found it breeding and took eggs."

Ictinia mississippiensis. MISSISSIPPI KITE.—The only point where I have observed this species is at Panasoffkee Lake, in Sumpter County. Here I saw three during January and February, 1876.

Elanus leucurus. WHITE-TAILED KITE.—I have not met with this species though it is of regular, but, I believe, rare occurrence in south-west Florida. A single specimen, 3218 of my collection, is before me. It is a male, and was taken by A. Lechevallier in the region below Cape Romano. Mr. Atkins has observed the species on Sanibel Island in winter.

Rostrhamus sociabilis. EVERGLADE KITE.—For remarks on this species previously published by me, see 'Bulletin Nuttall Ornithological Club', Vol. VI, January, 1881, pp. 14-21. At Panasoffkee Lake the birds were migrants, but at points south of Tampa Bay where they occur they are resident. At Panasoffkee Lake they bred in numbers in April.

Circus hudsonius. MARSH HAWK.—Common migrant and winter resident. I have no records of it in this region in summer, that is from May 1 till September. I have met with the adult male but twice in Florida, though the birds are abundant on the salt marshes of the Gulf coast. Mr. Atkins finds it in winter at both Punta Rassa and Key West. At both places it is common.

Accipiter velox. SHARP-SHINNED HAWK.—A regular though not common migrant and winter resident. I have no records of it in summer. Mr. Atkins obtained the species at Punta Rassa, where he regarded it as a rare migrant, but has not found it at Key West.

Accipiter cooperi. COOPER'S HAWK.—A casual visitor to the Gulf coast. During my observations here I have met with it but twice. Mr. Atkins took one at Punta Rassa in August in "very fine plumage." "Not noted at Key West."

Buteo borealis. RED-TAILED HAWK.—A rather rare winter visitor on the Gulf coast, and a rare resident in the region about Tarpon Springs throughout the year. It probably breeds in this vicinity, as a pair was observed on many occasions during the entire year of 1886.

Buteo lineatus. RED-SHOULDERED HAWK.—A common species and breeds. From a series of Red-shouldered Hawks, all adults, fourteen in number, four are typical, true *lineatus*. They are Nos. 5644, ♀, 5647, ♂, 5649, ♀, 6141, ♂, of my collection. All were taken at Tarpon Springs. In the series in question are three birds that are fairly intermediate between *B. lineatus* and *B. lineatus alleni*. They are Nos. 5817, ♀, 6022, ♀, and 5648, ♂.

Buteo lineatus alleni. FLORIDA RED-SHOULDERED HAWK.—This form is on the whole more common than the typical *lineatus* in the vicinity of Tarpon Springs. In the series of fourteen adult birds in my collection, seven, or half of the number are good examples of the pale form. These are Nos. 4350, ♀, 5312, ♂, 5646, ♂, 5640, ♀, 5645, ♂, 6075, ♂. The series of adult birds is further supplemented by a series of twelve birds in the gray or immature plumage, and the same relative proportion in distribution between the two forms seems to hold good here.

Buteo latissimus. BROAD-WINGED HAWK.—I have not met with this species in Florida, but Mr. Atkins took a single one at Key West on February 3, 1888. At the same place, on October 21, 1887, he saw "a large flock of Hawks, one hundred and fifty or more, which were mainly this species."

Buteo brachyurus. SHORT-TAILED HAWK.—A rather rare migrant and summer resident, breeding, in southern and southwestern Florida and coming regularly as far north at least as Tarpon Springs on the Gulf coast. For a detailed account see this number of 'The Auk,' p. 243.

Haliaeetus leucocephalus. BALD EAGLE.—A common resident on the Gulf coast of Florida. Breeds in numbers. The old nests are repaired in the vicinity of Tarpon Springs in November; the eggs, generally two in number, are laid by the 10th or 15th of December, and by the middle of February the young are about ready to fly. But one brood is reared, varying from one to three young.

Mr. Atkins finds the Bald Eagle breeding both at Punta Rassa and at Key West, but remarks that at Punta Rassa "they disappear for a time, if not for the entire summer."

Falco peregrinus anatum. DUCK HAWK.—A rather rare winter visitor on the Gulf coast of Florida. Observed all winter (1875-1876) at Panasoffkee Lake, and regularly every winter that I have been at Tarpon Springs. Mr. Atkins has taken the species at Punta Rassa in fall and spring and has observed it at Key West in fall and winter. It arrives at Key West about October 1.

Falco columbarius. PIGEON HAWK.—For records of the occurrence of this species I am indebted to Mr. J. W. Atkins, who took it at Punta Rassa on September 26 and October 5, 1886, and also at Key West on October 16 and 18, 1888. I met with it rather rarely at Panasoffkee Lake during the winter of 1875-76, but have no records from the immediate vicinity of Tarpon Springs.

Falco sparverius. SPARROW HAWK.—Common resident. Breeds in the vicinity of Tarpon Springs in early April. Mr. Atkins says that though he has taken them at Punta Rassa in July, none remain at Key West in summer. The first noted to arrive at that island in the fall of 1888 was on September 30.

Pandion haliaetus carolinensis. AMERICAN OSPREY.—Common resident. Breeds in January and February, according to locality. Mr. Atkins found this a common species at both Punta Rassa and Key West. He says: "I have a set of eggs from Marques Key, taken in November, 1887." Like the Eagle, the Fish-hawk did not remain in the vicinity of Punta Rassa in summer.

Strix pratincola. BARN OWL.—A rare resident. Probably breeds.

Syrnium nebulosum alleni. FLORIDA BARRED OWL.—Common resident. Breeds in the vicinity of Tarpon Springs in March. Mr. Atkins has seen this species at Sanibel Island in winter and has also records of them from Marco.

Megascops asio floridanus. FLORIDA SCREECH OWL. — Common in suitable localities, and resident. Breeds in March and April.

Bubo virginianus. GREAT HORNED OWL. — Not as common as the last two, but still a characteristic bird of the region under consideration. The time of breeding at Tarpon Springs and at Princeton, New Jersey, does not vary greatly. February finds the species with eggs at the latter place, though there is often snow on the ground, and the same month the eggs are laid about Tarpon Springs, though the climatic conditions are so very widely different.

Speotyto cunicularia floridana. FLORIDA BURROWING OWL. — At certain points in the interior in De Soto and adjacent Counties this species is resident and not uncommon. I have a series of thirteen birds before me that were taken in March, 1888, at Indian Prairie, De Soto County, Florida. They show little or no individual variation.

Mr. Atkins observed all the Owls I have mentioned near Punta Rassa, but has no record of the occurrence of any kind of Owl on the island of Key West.

Conurus carolinensis. CAROLINA PAROQUET. — With the settlement of the State this species has gradually disappeared till at the present time it must be regarded as a rare bird, though once so abundant and conspicuous. In the winter of 1875 and 1876 the birds were very abundant at Panasoffkee Lake, and the same season I saw many flocks on the Ocklawaha River. About Tarpon Springs they were formerly very common, and were looked upon by the few settlers as a decided enemy to the various fruit crops cultivated. They were wantonly mischievous and cut hundreds of young *green oranges*, peaches, and the like, from the trees almost as soon as the fruit was formed. This was up to within the last seven years. They were killed in great numbers while committing such depredations, being fearless and coming in large flocks. For the past five years but *one* small flock of some ten birds has been seen in this vicinity, and they were simply passing over and did not alight. No doubt the great number of these birds that have been killed in order to protect the fruit crops is a large factor in accounting for their disappearance, but it can hardly be regarded as the sole agent in the result that has been attained in most localities. The Paroquet seems to be one of the species that, like the Ivory-billed Woodpecker and others, disappears from settled regions, and it would seem to be a question of only a few years when Paroquets will be as unknown in most parts of Florida as they are in some of the States where the early settlers found them an abundant species.

At a point in Hernando County, in the vicinity of a place called Linden, the birds are still fairly common, and I have procured a series from that place this past winter (1888-1889). The ovaries of the female birds, taken about the middle of February, seemed to indicate that the breeding season would begin not later than the last of April. Mr. Atkins writes me, "I have no personal records of the occurrence of this species, but I have in my collection several specimens, and have seen others from

time to time that were taken in the Okeechobee region where the birds seem to be fairly common.

Coccyzus minor. MANGROVE CUCKOO.—That there are two forms of Mangrove Cuckoos occurring on the Gulf coast of Florida is apparent even from the limited amount of material that has come under my immediate observation. These birds are five in number, two of which were taken on the mainland; No. 3790 at Tampa, Florida, by Mr. Stewart, and No. 5465 at Punta Rassa, Florida, by Mr. J. W. Atkins. These two birds, as well as the others, I have submitted to Mr. J. A. Allen for comparison with the material in the American Museum at New York. He says: "Nos. 3790 and 5465 may be referred to *C. minor* proper, though much paler than *C. minor* from St. Vincents, Guadaloupe, Porto Rico, and Dominica; on the other hand, they just match specimens of *C. minor* from St. Thomas and Santo Domingo. Probably the West Indian *C. minor* runs into several races, your Florida examples being referable to those from the Larger Antilles, while those from the Lesser Antilles are not only *much* more deeply colored, but are larger birds. There is much more difference between specimens from Guadaloupe and St. Thomas than between your Florida examples and the St. Thomas specimens." I believe, from data accumulated during my researches on the Gulf coast of Florida, that *C. minor* will be found to be a regular migrant and summer resident almost as far north as Tarpon Springs, and that the species breeds on the mangrove keys off the coast in limited numbers. These birds are restricted to such localities in the breeding season almost in the same way as is the Black-whiskered Vireo, but are not nearly as common as that species.

Coccyzus minor maynardi. MAYNARD'S CUCKOO.—Through the kindness of Mr. J. W. Atkins of Key West, I have before me three examples of this subspecies, taken on the island of Key West. These birds, Nos. 5466, 5467, and 5468 of my collection, have been submitted for examination to Mr. J. A. Allen, and he agrees with me in referring them to this form. Mr. Atkins tells me by letter that "these Cuckoos are rather rare here (Key West) but I have good evidence that a few at least breed here in late May and during the month of June."

Coccyzus americanus. YELLOW-BILLED CUCKOO.—A common migrant and summer resident, breeding in numbers on the Gulf coast of Florida. They also breed commonly at Key West, Mr. Atkins tells me, and I have young birds collected by him there. Comparison of a large series of these birds with the same species taken in New York and Pennsylvania, shows no appreciable difference between birds from the several localities.

Coccyzus erythrophthalmus. BLACK-BILLED CUCKOO.—I have not met with this species in the areas visited, and am indebted to Mr. Atkins for the record of three individuals "taken at Key West in the fall," which is the only point where he has met with the Black-billed Cuckoo in Florida.

Ceryle alcyon. BELTED KINGFISHER.—A common winter resident, and some breed, in the region about Tarpon Springs. Mr. Atkins says

"This is a common winter resident both at Punta Rassa and Key West. Last spring note at Key West, May 22, 1888, and not seen again till August 30, 1888."

Campephilus principalis. IVORY-BILLED WOODPECKER.—For remarks on this species the reader is referred to 'The Auk,' Vol. V, No. 2, April, 1888, p. 186. Mr. Atkins regards it as rare in the vicinity of Punta Rassa, and has not observed it at Key West.

Dryobates villosus audubonii. SOUTHERN HAIRY WOODPECKER.—A not very common resident in the region about Tarpon Springs, where the breeding season is in April. Not noted by Mr. Atkins at either Punta Rassa or Key West.

Dryobates pubescens. DOWNY WOODPECKER.—Rather more common than the last, and breeding at about the same season. Observed by Mr. Atkins at Punta Rassa as a resident species, though rare, and not seen by him at Key West.

Dryobates borealis. RED-COCKADED WOODPECKER.—Common resident. Breeds in the vicinity of Tarpon Springs in April. This species seems to be confined to the pine woods, and I cannot recall an instance of meeting with it in the hammocks of the Gulf coast. Not observed by Mr. Atkins at either Punta Rassa or at Key West.

Sphyrapicus varius. YELLOW-BELLIED WOODPECKER.—A not common winter visitor on the Gulf coast, where I have met with it as far south as Clearwater Harbor. The birds remain in the vicinity of Tarpon Springs as late as the last week in March.

Mr. Atkins says the Yellow-bellied Woodpecker is rather common at Punta Rassa and at Key West during the migrations. First one noted at Punta Rassa April 6, 1886. Returning, it arrives at Key West early in September, and can be found now and then throughout the winter. "Key West, April 1, 1889. First northward flight of year."

Ceophlæus pileatus. PILEATED WOODPECKER.—Common resident. Breeds late in March and early in April in the vicinity of Tarpon Springs. Observed by Mr. Atkins at Punta Rassa, but not at Key West.

Melanerpes erythrocephalus. RED-HEADED WOODPECKER.—In certain regions of the Gulf coast this species is a rather common resident, and in others it is almost unknown. For instance, at Tarpon Springs I have never met with it, but at a point seven miles north of that place and about a mile inland from the Gulf, there is a region of pine woods of perhaps five hundred acres in extent, where the Red-headed Woodpeckers are a conspicuous element of the bird life the year round. Mr. Atkins has not observed the Red-headed Woodpecker either at Punta Rassa or on the Island of Key West.

Melanerpes carolinus. RED-BELLIED WOODPECKER.—Common resident. Though it is met with everywhere, the hammocks seem to be preferred to the pine regions by this bird. Breeds in April and May in the vicinity of Tarpon Springs. Mr. Atkins found this species a common resident at Punta Rassa, and resident, but not nearly so numerous, at Key West.

Colaptes auratus. FLICKER. — Common resident, but rather more abundant in December, January and February than at other seasons.

"Common in winter at Punta Rassa; not observed there in summer. Rather rare at Key West, where it has only been met with in the fall."—J. W. Atkins.

Antrostomus carolinensis. CHUCK-WILL'S-WIDOW. — Resident on the Gulf coast at least as far north as Tarpon Springs, where in winter, December and January, they are rather rarer than at other seasons of the year. There the birds begin to sing in February, but are not in full song as a general thing till the first week in March. The mating season seems to continue through this month, and the eggs are not laid till the middle or last of April, or even later. The period of song continues till late in July, when it ceases and the birds are silent till the beginning of the following breeding season.

Mr. Atkins says: "Arrives at Punta Rassa in early April, after which their notes are heard on all sides. May 6, found a nest with two eggs on the bare ground in a swamp. The incubation about half completed. Last birds observed at Punta Rassa October 30. At Key West, noted first on March 3, and on the southern migration is very common from August 28 to September 18. Have yet to hear their notes here."

Chordeiles virginianus chapmani. CHAPMAN'S NIGHTHAWK. — For remarks on the breeding of this form see 'The Auk,' Vol. V, p. 186. The birds, as far as I am aware, are migrants and summer residents on the Gulf coast of Florida. In the vicinity of Tarpon Springs they arrive about the middle of April and in a few days become very abundant. They breed here in numbers, and become particularly abundant in late August and September, remaining till late in October and rarely into November. Observed by Mr. Atkins at Punta Rassa and at Key West, at both places as a common migrant and summer resident.

Chætura pelagica. CHIMNEY SWIFT. — Common migrant and summer resident, and very rarely observed during the colder months. Near Tarpon Springs the birds regularly arrive from the south late in April (24-30), and become abundant in a few days. Most of them pass on to the north after a short interval, but many remain to breed in the immediate vicinity.

Trochilus colubris. RUBY-THROATED HUMMINGBIRD. — Common spring and fall migrant, and a rare summer resident. About Tarpon Springs the birds appear late in February or early in March, according to the season, and for a month or six weeks are very common, after which time they disappear. The only records I have of the species in summer, near here, is of one seen July 10, 1888, and another August 4 of the same year.

Of the Ruby-throated Hummingbird Mr. Atkins says: "It is very common at Punta Rassa in winter, arriving early in September. By the middle of April all have departed. At Key West it is fairly common in winter. Last noted in spring, April 10."

(To be continued.)

AN UNDESCRIBED SUBSPECIES OF *DRYOBATES PUBESCENS*.

BY C. F. BATCHELDER.

SOME Downy Woodpeckers I examined last autumn showed such marked differences between birds from different parts of the western United States that I have since then gathered together considerable material in order to find out what this geographical variation amounts to. I have been enabled, by the kindness of Messrs. Brewster, Ridgway, Jeffries, and other friends, to examine, in addition to my own series, a large number of specimens from various localities in the West, amounting altogether to ninety-five, besides nearly as many more Eastern skins.

These show plainly that the birds inhabiting the Rocky Mountains are of a race very different from true *gairdnerii*, which was originally described by Audubon from the Columbia River, and which in its typical form seems to be confined to the coast region of Oregon, Washington Territory, British Columbia, and possibly southern Alaska. I have concluded, therefore, to describe the former subspecies under the name of

Dryobates pubescens oreæcus,^{*} subsp. nov.

SUBSP. CHAR. — Similar to *D. p. gairdnerii*, but with the underparts pure white instead of light smoky brown, the white areas generally more extended, the under tail-coverts immaculate instead of being spotted or barred with black, the size somewhat greater except the feet which are relatively smaller.

Adult male (Type, No. 196, collection of C. F. Batchelder. Las Vegas Hot Springs, New Mexico, Dec. 18, 1882, C. F. Batchelder). Above black; nasal feathers whitish, sparingly mixed and tipped with black; two white stripes on each side of head; a scarlet nuchal band; a broad white stripe down the middle of back. Wings black, spotted with white, these spots, on the quills, mostly in pairs, one on each web, that on the inner web usually much the larger; the wing-coverts and inner secondaries with but few or none of these white spots. Middle tail-feathers black; the next pair black, or at most edged with white on terminal half of outer web; on the third pair the white covering nearly half the feather; on the outer two pairs the black restricted to the concealed basal portion of the feather and to a few small spots, rarely bars, on the terminal half

^{*}*oreæcus* = mountain-dwelling.

of the feather. Beneath, including under tail-coverts, immaculate white. Measurements:—wing, 105.1; tail, 65.4; culmen, 18.3; bill from nostril, 14.1; tarsus, 14.6; middle toe and claw, 19.9; hind toe, 13.2; claw of hind toe, 7.7 mm.

Adult female (Type, No. 216, collection of C. F. Batchelder. Loveland, Larimer Co., Colorado, Jan. 27, 1889, W. G. Smith). Similar to the male, but lacking the scarlet nuchal band. Measurements:—wing, 101.9; tail, 66.4; culmen, 18.2; bill from nostril, 14.5; tarsus, 16.0; middle toe and claw, 19.4; hind toe, 13.1; claw of hind toe, 8.0 mm.

While *D. p. oreæcus* is readily distinguished from *D. p. gairdnerii* by the characters given above, it is separable from *D. pubescens* of the East by the scarcity or absence of white spots on wing-coverts and inner secondaries, which character it shares with *D. p. gairdnerii*, by its greater size, and by its unspotted under tail-coverts. This latter character is very uniform; among eighteen skins from various points in the Rocky Mountain Region I find in one only a barely perceptible trace of spotting, while in all examined from the Pacific Coast and from the East the coverts are spotted, or sometimes even barred, with black. The relative size of the three forms is shown by the following average measurements of seventeen *D. p. gairdnerii* from British Columbia, Washington Territory, and Oregon, eighteen *D. p. oreæcus* from Montana, Wyoming, Colorado, and New Mexico, and twenty *D. pubescens* from New England and Pennsylvania.

	Wing.	Tail.	Culmen.	Bill from nostril.	Tarsus.	Middle toe and claw.	Hind toe.	Claw of hind toe.
<i>D. p. gairdnerii</i>	94.8	60.7	17.2	13.8	15.6	19.1	13.0	7.6
<i>D. p. oreæcus</i>	102.0	66.5	18.3	14.3	15.6	18.7	12.8	7.6
<i>D. pubescens</i>	94.4	59.6	17.7	13.6	15.4	17.6	12.5	7.2

Specimens from many intermediate localities show, as might be expected, every degree of intergradation between the typical forms, and this varies quite regularly according to the position of each locality.

Downy Woodpeckers from southern California show but a slight trace of the smoky tinge of *D. p. gairdnerii* and are even smaller than the Northwest Coast birds, but this seems hardly sufficient ground for their specific separation. It appears to have been a bird of this extreme southwestern form that Malherbe in 1861 described under the name of *Picus turati*. It was killed,

he says, not far from Monterey, and he describes it as not differing much from *D. p. gairdnerii* except by its smaller size.* The species is by no means abundant in southern California, and I have seen no specimens from south of San Bernardino County. A series of ten from various points in the southern half of the State gives the following average measurements: wing, 90.9; tail, 57.6; culmen, 16.9; bill from nostril, 13.2; tarsus, 15.1; middle toe and claw, 17.5; hind toe, 12.2; claw of hind toe, 7.2 mm.

AN UNUSUAL FLIGHT OF KILLDEER PLOVER (*ÆGIALITIS VOCIFERA*) ALONG THE NEW ENGLAND COAST.

BY DR. ARTHUR P. CHADBOURNE.

A VERY unusual flight of Killdeer Plover occurred along the New England coast in the latter part of November, 1888, and I have succeeded in collecting some data that may help to show from whence the birds came, and why they were found in certain places while only a short distance away they were absent or found in small numbers.

My data would have been far from satisfactory had it not been for the kindness of Dr. C. Hart Merriam, Chief of the Division of Economic Ornithology of the U. S. Department of Agriculture, who sent circulars to all the light-house keepers on the Atlantic coast, asking about the occurrence of Killdeer Plover in the fall of 1888, and to these reports I am largely indebted for what I have been able to find out about the flight in question. Where there seems to have been any doubt of the identity of the birds noted, the report has been excluded from the following list, and this has necessarily left out some places where the birds appeared in small numbers.

* "Le *p. Gairdneri* d'Audubon a exactement, d'après ce dernier auteur, les dimensions du *pubescens*, qui est plus grand que mon espèce nouvelle." —MALHERBE, *Mnographié des Picidae etc.*, Vol. I, p. 126.

Before receiving the circulars sent out by Dr. Merriam I succeeded in collecting a number of data that appear in the list given below and are marked with an asterisk.

<i>Locality.</i>	<i>First Seen.</i>	<i>Remarks.</i>
Nova Scotia.		
Cape Sable.....	Latter part of November.	Remained till January.
Negro Island....Nov. 26.....	After the big gale.	Came in in afternoon from the east. Remained till Dec. 20.
Seal Island.....Nov. 25.....		Remained one month.
Westport.....	Middle of November.	
New Brunswick.		
*"Bay of Fundy"...Dec. 1 (?).....	Mr. Geo. A. Boardman.	(See below).
Belledune.....Nov.....		Remained till late in December. 100-200 in a flock.
*Grand Manan....Dec. 1 (?).....	Mr. Geo. A. Boardman.	(See below.)
Southwest Head...Nov. 26.....	Scattered flocks.	Remained till late in December. Came from the east.
Swallow Tail....Nov. 28.....	Small flocks after a gale.	Remained till late in December.
Maine.		
Boon Island.....Nov. 26.....	Last seen Nov. 29.	Small flocks.
Cape Elizabeth...Nov. 28.....	Flocks of from 25 to 50.	Last seen Dec. 10.
Goat Island.....Nov. 25.....	After N. E. gale.	Last seen Jan. 4.
Narragausus....Dec. 1.....	Stayed about four weeks.	Small flocks.
Petit Menan.....Dec. 1.....	Small flocks.	Remained until Dec. 7.
Pond Island.....About Nov. 20.....	Remained 2-3 weeks.	
*Portland.....	See 'Auk,' Vol. VI, 1889, p. 69.	
Seguin.....	Last of November.....	Remained two weeks.
Wood Island.....Nov. 26.....	Quite large flocks.	Stayed until Dec. 10. Came in heavy N. E. gale.
New Hampshire.		
*Isles of Shoals...Nov. 25.....	Large numbers in the midst of the great storm.	Remained until Jan. 31.
Massachusetts.		
Baker's Island....About Nov. 20.		
Brant Point.....Nov. 26.....	Large flocks, in severe N. E. storm.	Last seen Dec. 6.
*Cambridge.....Dec. 25.....	One.	
Cape Ann.....Nov. 26.....	Last seen Jan. 18.	Common until Dec. 15.
Cape Cod.....Nov. 26.....	In flocks.	Left about Dec. 20.
Cape Poge.....Nov. 26.....	After the gale.	Left Dec. 6
Chatham.....Nov. 25.....	Scattered all over old pasture fields.	"25 years since these birds were seen here." Still present on Jan. 29.

<i>Locality.</i>	<i>First Seen.</i>	<i>Remarks.</i>
*Chatham.....	About Nov. 26.....	Large numbers, over beaches and upland. Came in during the storm.
Cuttyhunk.....	Nov.....	Still about on Jan. 26.
*Essex.....	About Nov. 29.....	Flock of twenty-five.
Hyannis and Range Beacon.	Nov. 26.....	Small flocks, over considerable territory. Last seen about the middle of Dec.
*Ipswich.....	Nov. 29.....	Two.
Marblehead.....	About Nov. 25.....	In small flocks. Seen last about Dec. 10.
*Marshfield.....	Dec. 7.....	One. (Probably others.)
Mayo's Beach.....	Nov. 26.....	Middle of January, some seen, "Meadows all full of them."
Monomoy Point.....	Nov. 26.....	Last seen on Jan. 10. "Not appeared in this neighborhood....(before) since 1870, to my knowledge."
*Nantucket.....	Nov. 27.....	Whole island covered with them.
Nadset Beach.....	Nov. 26.....	Last seen Jan. 22.
*Provincetown.....	Late in Nov.....	"Just after the big storm." and Chatham. Very large numbers.
*Revere Beach.....	Nov. 29.....	Two.
Rockport.....	Nov. 28.....	"They were very plenty along the shore of the mainland, and were in flocks of twelve or more." "Came after a violent gale."
Wood End.....	Nov. 26.....	Last seen about Dec. 10.
Rhode Island.		
Block Island.....	Nov. 23 (?).....	Last seen Dec. 24.
Conanicut Island.....	Nov.....	
Gull Rocks.....	About Nov. 24.....	Remained a few days.
*Newport.....	Nov. 24.....	
Point Judith.....	Nov.....	
Sakonnet.....	Nov. 25.....	
Watch Hill.....	Nov. 25.....	Several small flocks and one large one.
Connecticut.		
Black Rock.....	Last of Nov.....	Two.
New York.		
*Good Ground (L. I.).....		First seen about Dec. 1.
Great West Bay.....	Nov. 26.....	Last seen about Dec. 12.
Montauk Point.....	Nov. 25 (?).....	Came in with a N. E. gale.
New Jersey.		
Navesink.....	Dec. 15.....	
Pennsylvania.		
Schooner Ledge.....	Dec. 15.....	

Formerly the Killdeer Plover was not uncommon in southern New England, but for years it has been very rare. The birds still breeds in Rhode Island, however, for Mr. Charles H. Lawton of Newport writes that "the Killdeer is quite plenty with us, but has

decreased considerably of late years. They lay in several localities and generally stay until early November," and Mr. J. M. Southwick says "the species is not uncommon at Bristol, R. I., or was not a few years ago; not abundant ever, and perhaps rarer for the past four years." Still anything like a fall flight of Killdeer in Massachusetts is a thing of the past and there is no recorded instance of such vast numbers as visited our coast in November, 1888.

On the eastern side of Cape Cod, on Nantucket, and the Isles of Shoals, large numbers of Killdeer came in from the sea, some of them on November 25, but the majority on the morning of the 26th. One of the market gunners said that "the whole island of Nantucket, both beach and upland, was covered with the birds" which occurred in loose straggling flocks. There seemed to be no other species with them*; and though not fat, they were not in very poor condition. He had seldom known of this species on the island, and then in extremely small numbers. Along the eastern side of Cape Cod the Plover were as abundant as on Nantucket, and the conductors on the trains running from Provincetown to Boston reported that during and just after the big storm late in November, 1888, the whole country about Provincetown was alive with Killdeer Plover, a bird that few of the gunners knew, while all along the beaches from Provincetown to Chatham large flocks were continually started up by the train. "It seemed as if we were passing through one big flock of them all the way, and the fog made them afraid to go out to sea against the wind." At the Isles of Shoals, Mrs. Celia Thaxter writes,† "I was not at the Shoals when the birds appeared. All I know about them my brother tells me. It seems they appeared in large numbers, hundreds of them, in the midst of the great storm of November 25, feeding in the little valleys where the sea swept across the island. All sorts of strange things were cast up by the storm on these islands and the birds were busy devouring everything they could find, always running, chasing each other, very quarrelsome, fighting all the time. They were in very poor condition, so lean that the men did not shoot them after the first day, a fact that gives your correspondent great satisfaction! They

* The only exceptions I know of are one *Totanus melanoleucus* at Winthrop, Mass., and another at Marshfield; also a few *Charadrius dominicus* at Newport, R. I.

† Through the kindness of Mr. Bradford Torrey I have been allowed to use Mrs. Thaxter's letters to him about the Killdeer Plover.

were very tame, would settle back immediately after being disturbed. Their cry was very annoying, piercing, and exasperating, especially as they kept it up all night. My brother said they would allow you to come within twenty feet of them without moving. No one had ever seen them before." I was told that at Chatham about Nov. 26 the birds swarmed everywhere, but after the first day or two grew shy and were found inland about ponds and spring-holes. After the storm the birds gradually disappeared, except a few that remained at favorable points for a long time; at Chatham some were seen as late as Dec. 22, and at the Isles of Shoals they had not all gone on Jan. 31, 1889. On the eastern end of Long Island the birds apparently occurred in large numbers, though I have no very satisfactory data from that region. I have not heard of any from farther up Long Island Sound, or on the Connecticut coast, except at Black Rock, which is near Bridgeport. Dr. William C. Rives says that about Newport Mr. Charles H. Lawton reports: "The day of the big storm, Nov. 24, they [the Killdeer Plover] made their appearance, and have been feeding in this locality ever since. I have been noting a large flock that has been feeding in the wet land at the head of Almy's Pond. . . . They were there last night (Dec. 24). I have only heard [of them] within a few miles along the coast, so can't say how far the flight extends. They have been very abundant, never heard of such a flight before. . . . I have also heard of some Golden Plover the first day or two of the flight." From Cape Cod as far north as Newburyport, and probably to Portland, Maine, the birds were common, but not in anything like the numbers found along Cape Cod and on Nantucket. At Portland and Biddeford, Maine, they were apparently about as plenty as near Boston. Mr. Geo. A. Boardman of Calais, Maine, writes "there has been quite a flight of Killdeer Plovers, the first I heard of was shot from a flock on Dec. 1, and the last Dec. 15. Most were sent me from Grand Manan. It is now [Dec. 29] two weeks since I have heard of any being shot." From Nova Scotia and New Brunswick I have only the light-house reports, but these seem to show that the eastern and southern parts of Nova Scotia were the most visited. South of Long Island no birds are reported until well into December, and by that time many would have worked their way south.

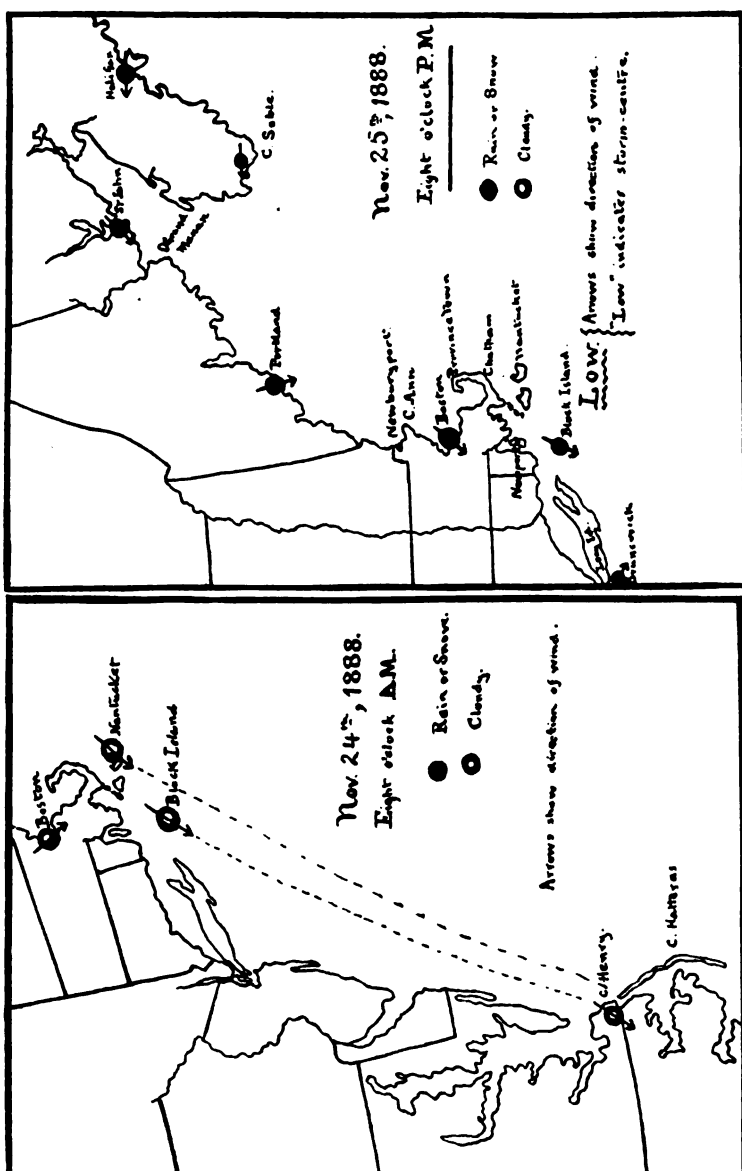
The flight seems to have been limited to within a mile or two

of the coast. The farthest inland that I know the species to have been shot is Cambridge, Mass., where a single bird was taken by Mr. W. P. Coues on Dec. 25, 1888.

The region from which these Plover came cannot be absolutely proved, but there seems to be evidence enough to leave little doubt that it was somewhere in the South Atlantic States north of Florida. Mr. S. H. Henshaw has most kindly examined the stomachs of several Killdeer shot on Nantucket between the 28th and 30th of November, not more than three days after their arrival on the Island. They contained practically nothing but insects, and most of these were so broken and macerated that they had undoubtedly been in the stomach for several days, probably a week. There was no species that does not occur on the Massachusetts coast, though the majority are far more common in South Carolina, North Carolina, and Virginia than on Nantucket. "Had the birds come from west of the Alleghany Mountains some characteristic insects would almost surely have been found, and the same is true if they had come from Florida." Taking it for granted that this portion of the flight, at any rate, came from the Atlantic States, somewhere north of Florida and south of New England, probably not north of Virginia, let us see how the great influx of Killdeer Plover along the New England coast can be accounted for.

In the southern Atlantic States the Killdeer are probably migrating southward during the latter part of November. In the Carolinas on Nov. 23 at 8 P. M. the wind was northeast and from eight to ten miles an hour, while farther inland it was due north and only six miles an hour, and throughout the whole region it was somewhat cloudy. Mr. W. W. Cooke * and others have proved that slight cloudiness will not keep birds from starting on their southern journey, and on this evening there was a light and favorable wind to help them south without being so strong as to make it hard for them to direct their course as they wished. During the night of the 23rd it grew more cloudy, but the birds, though unable to see their landmarks, yet thinking their course the right one would have kept on their way. In the mean time the wind had gradually shifted more to the west, until at eight A. M. it was due north or northwest, and therefore

* 'Report of Bird Migration in the Mississippi Valley in the years 1884 and 1885. W. W. Cooke. Washington, 1888.



BASED ON THE TRI-DAILY WEATHER MAPS OF THE U. S. SIGNAL SERVICE.

off-shore, and blowing at the rate of forty miles an hour. After the earth had been hidden by clouds the greater velocity of the wind would not have been noticed, for the birds would have been carried onward as fast as the clouds below or around them, and it is well known that a balloon may move at a tremendous speed without the occupants knowing it if the earth is hidden from view. This must have brought the birds that started from near the coast over the ocean long before morning, and as they descended through the clouds expecting to feed and rest they would have found themselves over the water and carried along by a violent wind; they would then have flown but little above the sea so as not to pass over any land without knowing it.

At Charleston, South Carolina, on November 24, at 8 A. M., the wind was blowing forty miles an hour and was off-shore, and the storm centre was moving north at the rate of seven hundred miles in twenty-four hours. Some of the Plover nearer shore may have struggled against the off-shore wind long enough to get back to land, but those farther out must have been caught in the northern current and have been unable to make way against the much stronger gale blowing north on the eastern side of the storm centre. By the time they had been carried around the storm centre and had reached the weaker back current, they would have completely lost their bearings and have ceased to struggle against the storm. Even if they had held their own against the wind, they would have gained nothing, for the storm was moving north all the time and would have carried them with it. On the morning of Nov. 24 the only points on the Atlantic coast where the wind was blowing on shore were Cape Cod, Long Island, parts of the Massachusetts and Maine coasts, Nova Scotia and near Cape Hatteras, and the birds, carried along by the wind, would have been brought to land at these points. Around the storm centre the wind is continually working inward in a spiral, and therefore during the northward progress of the storm the birds were being concentrated more and more around the central point and by the time this point was near Block Island, N. Y. (Nov. 25), most of the Plover were circling around it with progressively smaller and smaller numbers on the periphery. Having reached the neighborhood of Block Island, the storm centre remained stationary for about forty-eight hours, and this undoubtedly gave time for all of the birds to reach land before the storm moved farther north.

In this way we should expect to find the largest number of the birds on the coast near Block Island where the wind was on shore, and at points more and more distant from this place their numbers would gradually diminish. A comparison of the list of localities at which the birds were found, with the map showing the direction of the wind when the centre was near Block Island, will show that this was apparently the case. At Cape Hatteras we should expect to hear that Killdeer appeared in considerable numbers on Nov. 24, but the storm was moving north so rapidly that in a few hours the wind blew across Cape Cod and Martha's Vineyard (see dotted line on the map) before reaching Cape Hatteras, and few if any of the birds would have been carried across the land without alighting.

A NEW SPECIES OF DUCK FROM TEXAS.

BY GEORGE B. SENNETT.

Anas maculosa, nov. spec. MOTTLED DUCK.

♂ *adult*. Type in my collection, No. 5857, taken by J. A. Singley, April 4, 1889, at Nuesces Bay, near Corpus Christi, Texas; collector's No. 1386.

SPEC. CHAR.—Top of head blackish brown, margined with very pale buff; chin and throat isabella color; cheeks buffy white with narrow streaks of dark brown. Feathers of breast, wings, upper parts, and flanks blackish brown margined with pale buff. Under parts buffy white, each feather with a broad blackish brown spot near the tip, giving a decided mottled appearance. Under tail-coverts blackish with outer margin of inner web reddish buff, that of outer web buffy white. The four median feathers of tail blackish brown; the others fuscous margined with pale buff having a V-shaped mark as in *A. fulvigula*, but of a buffy white. Under surface of all tail-feathers light gray excepting the four median which are blackish brown. Lining of wing white. Speculum metallic purple, feathers tipped with white. Bill has small black spot on base of lower edge of upper mandible, as in *A. fulvigula*. Feet reddish orange. Wing, 10.05; culmen, 2.25; tarsus, 1.75; middle toe and claw, 1.50 inches.

♀ *adult*. Type in my collection, No. 5858, taken by J. A. Singley, April 4, 1889, at Nuesces Bay, near Corpus Christi, Texas; collector's No. 1387.

Similar to the male excepting that there is no black spot on the bill at the base of the upper mandible. Wing, 10.00; culmen, 1.90; tarsus 1.60; middle toe and claw, 1.45 inches.

Young, half fledged. Type in my collection, No. 5188, taken by John M. Priour, July 8, 1887, at Nueces River, near Corpus Christi, Texas.

Top of head mixed brown and white; forehead, cheeks, chin, and throat white, anteriorly tinged with pale buff. Back brown; scapulars, breast and under tail-coverts black and reddish buff; belly blackish brown and pale buff.

I remember seeing in 1882 several pairs of this Duck on the wing when I was collecting about the extensive grass flats of Corpus Christi Bay near Padre Island. I then felt sure that it was unlike the Black Duck (*Anas obscura*) so common in the Northern States, but neglected to procure specimens. Of course I was delighted when, this season, I obtained a pair of these Ducks, adults, in breeding plumage, which, with the half-fledged young taken nearly two years ago, determine a new form of the genus breeding in southern Texas.

The new Ducks come nearer to *Anas fulvigula* than to *Anas obscura*, and after comparing them with some fine examples of *fulvigula* in the American Museum (collected by Mr. Chapman this spring in Florida), I sent the Texas birds to Mr. Ridgway that he might decide how near they came to *Anas diazi* of Mexico, which he described in 1886. Mr. Ridgway's opinion is so appropriate to the introduction of the new bird that I quote from his letter as follows: "Unfortunately I am not able to compare your Texan Black Ducks with a specimen of *Anas diazi*, the only known specimens of the latter having been taken to Mexico with the rest of the Mexican Collection. I had a photograph taken of the type, with which your birds have been compared, and have also compared them with the detailed description in Proc. Nat. Mus., Vol. IX, pp. 171-173, and cannot make them out to be the same. Your birds have larger bills and feet, the former with a black spot at lower basal angle, in males, as in *A. fulvigula*, and without the darker culmen; top of head more broadly streaked with buff, and buff markings of back, etc., also apparently broader; white subterminal band across greater wing-coverts wanting; tail-feathers differently marked, etc. I think the safer plan would be to describe your bird as a new species, more nearly allied to *A. fulvigula* than *A. diazi*."

During my absence from the American Museum Mr. D. G.

Elliot has kindly sent me a comparative description of the differences between *A. fulvigula* and this new species, and I find them so good that I have adopted much of his wording in the specific characters given above. Mr. Elliot says, "It seems to me a good species and I wonder it has been overlooked."

The most marked differences between *A. maculosa* and *A. fulvigula* are that the cheeks of the former are streaked with brown while those of the latter are plain buff; the speculum is purple instead of green; the general effect of the coloration, especially on the under sides, is mottled instead of streaked; the light color everywhere is a pale buff or isabella color instead of a rich, deep buff; and the tail markings also are different, as indicated. The female had in its oviduct a perfect egg, which I have not yet received from Mr. Singley. Mr. Priour is familiar with the Duck, and finds it not uncommon on the grass flats of Nuesces Bay and River.

RECENT LITERATURE.

Cory's Birds of the West Indies.*—Mr. Cory has republished in a book of 324 pages his various papers on West Indian birds published during the last three years in 'The Auk,' together with much new matter, including two maps of the West India Islands, and a bibliography of West Indian ornithology (pp. 5-14). Several new cuts have been added, and changes have been made at various points in the text, which in the main is a reprint from the electrotype plates of Mr. Cory's series of papers in 'The Auk.' About 555 species are recorded as West Indian, of which 350 are described at length; the remaining 205 (or thereabout) are North American, respecting which merely the character of their occurrence in the West Indies is chronicled, with a citation of the references to their West Indian history. Nearly three fifths of the species treated are distinctively West Indian, being not found elsewhere. Mr. Cory states (p. 3) that in the preparation of the work he examined a large series of birds

*The | Birds of the West Indies. | Including | all species known to occur in the Bahama Islands, the Greater | Antilles, the Caymans, and the Lesser Antilles, excepting | the Islands of Tobago and Trinidad. | By | Charles B. Cory, | Curator of Birds in the Boston Society of Natural History, Fellow of the | ... [=5 lines of titles] | Author of | ... [=4 lines, titles of works. | — | Illustrated. | — | Estes & Lauriat, | Boston, U. S. A. | 1889.—8vo, pp. 324, 2 maps, and numerous woodcuts in the text.

from nearly all of the islands of the West Indies, numbering altogether many thousands of specimens. He, himself, made five trips to different parts of the West Indies, and besides, sent out various collectors to the different islands, some of whom were in the field for from six to eighteen months each. Mr. Cory's book forms an invaluable hand-book of West Indian ornithology, and will prove indispensable to all future workers in this field, his citation of the extensive literature being especially important.—J. A. A.

Sclater's Catalogue of the Mesomyodian Passeres.*—Few books can be more welcome to the general student of birds than monographic works treating of the non-oscine Passeres of America, the literature relating to them being widely scattered and difficult of access, the synonymy perplexing, and the species of the larger genera exceptionally difficult to distinguish. When the task of bringing order out of this almost hopeless chaos is undertaken by a master in the field, as in the present case, whose familiarity with the birds to be treated is admittedly greater than that of any of his fellow-workers in the same field, the ordinary student can but feel that a great burden has been lifted, and a vast flood of light spread over a dark corner of the ornithological field. While the work before us is an inestimable boon, and will make the way far easier for all who may come after, it still leaves much to be desired, and is in some ways disappointing and unsatisfactory. But, from the nature of the case, this was perhaps unavoidable, and the attitude of the reviewer should be one of gratitude for blessings received rather than of criticism and complaint that an ideal treatment of the subject has not been presented.

"In dealing," says Dr. Slater, "with the five Neogean families—Tyrannidæ, Oxyrhamphidæ, Pipridæ, Cotingidæ, and Phytotomidæ—I have followed throughout, with few exceptions, the divisions and arrangement adopted by Mr. Salvin and myself in our 'Nomenclator Avium Neotropicalium,' published in 1873. It would have been better, no doubt, in some respects, to have attempted a thorough revision of these groups; but I felt that the short time assigned to me for the preparation of the present volume, and the comparatively little leisure I had to devote to it, would not give me a chance of performing this revision satisfactorily. This, therefore, I must leave to some younger and better qualified worker to perform. Nevertheless, . . . I feel that I have accomplished a not unsatisfactory piece of work, and one that will enable the ornithologist of the future, who may wish to take in hand a real monograph of these difficult groups, to start with much greater advantage." To concede this claim,

*Catalogue | of the | Passeriformes, | or Perching Birds, | in the | Collection | of the British Museum. | — | Oligomyodæ, | or the Families | Tyrannidæ, Oxyrhamphidæ, Pipridæ, Cotingidæ, | Phytotomidæ, Philepittidæ, Pittidæ, | Xenicidæ, and Eurylæmidæ. | By | Philip Lutley Slater. | London: | Printed by order of the Trustees, | 1888.—8vo, pp. xx + 495, pll. xxvi. Forming Vol. XIV of 'Catalogue of the Birds in the British Museum.'

which we most heartily do, is to make but faint recognition of the heavy obligations ornithologists must feel they are under to the author of the volume under notice.

Of the thirteen families of so-called Mesomyodian Passeres only nine, forming the section Oligomyodæ, are treated in the present volume; the remaining four (Tracheophonæ), all New World forms, will form the subject of a succeeding volume, by the same author, already nearly ready for publication. Of the families treated 655 species are recognized, represented in the British Museum Collection by 7360 specimens, only 38 of the species recognized as valid being unrepresented in the collection, which includes 161 "actual 'types' of species" treated, and much other authentic material. The Tyrannidæ number 409 species; the Oxyrhamphidæ, 5; the Pipridæ, 79; the Cotingidæ, 110; the Phytotomidæ, 4; the Philepittidæ, 2; the Pittidæ, 50; the Xenicidæ, 3; the Eurylæmidæ, 11.

The Tyrannidæ thus outnumber, nearly two to one, the species of all the other eight families collectively. As is well known to our readers, they are exclusively American, and mainly limited to the American tropics, although a few genera are widely dispersed over North America. "Their generally uniform plumage and similar external structure renders the discrimination of the species of the Tyrannidæ and their grouping into genera extremely difficult, and in many cases unsatisfactory." Add to this the considerable range of individual and seasonal variation occurring in many of the genera, and the difficulties in the way of the systematist are in some cases well nigh disheartening. While many species "no doubt remain to be discovered, as the more remote portions of South America come to be investigated," it is equally certain that as more material is accumulated many hitherto currently recognized species will have to be reduced to synonyms. As might be expected in large genera of closely allied species, brief descriptions, such as are given in the present work, fail to discriminate, and the characters given in the 'keys' fail to throw much further light. This, in many cases, is the fault of the 'species,' but not infrequently the fault of haste in the preparation of the work. Commonly, however, a line or two is added to the description stating the supposed differences separating one closely allied species from another. In many instances the author is laudably conservative in respect to admitting species that have slight claims to admission, while in other similar cases judgment is apparently waived in favor of current tradition. In other cases species have been merged which are unquestionably distinct.

Perhaps the most unsatisfactory feature of the work is the omission to give more than a brief description of an average adult bird, in cases where there is much seasonal variation in plumage, and often very great variation between adult and young. A case in point is *Copurus colonus*, under which *C. funebris* Cab. & Hein. is placed as a synonym, without a word of comment, or any indication that the young bird is in any way different from the adult. The adult *C. colonus* is a black bird, with a white rump and a grayish white head, and the middle pair of tail-feathers

three times the length of the lateral ones. The young (on which *C. funebris* is supposed to have been founded) is wholly deep black, with the middle tail-feathers but slightly exceeding the others in length. Such descriptions of course cover only half the ground, and are exceedingly inefficient.

Lack of space forbids criticism of the many points in respect to synonymy and nomenclature which almost daily use of the work for several months has brought to light, many of which we hope to cover later in other connections. They do not, however, seriously detract from the value of the work, which in its orderly grouping of the species, the marshaling of thousands upon thousands of references to the literature of the subject, and the fair clues given for the recognition of the species will ever render the work invaluable to all future workers in the same field.—
J. A. A.

Sc Slater and Hudson's 'Argentine Ornithology.'—The second volume* of this excellent treatise has just appeared, completing the work. Its general character having been already stated in our notice of the first volume (*Auk*, V, p. 199), it only remains to speak of the special features of the present one, which contains an account of all the non-Passerine birds found in the Argentine Republic. The high praise we gave the first volume is fully merited by the second. In this the biographies are in many instances more extended, especially in the case of several of the Hawks and Owls. The whole number of species recognized as belonging to the Argentine avifauna is 434, of which 205 are treated in the present volume. An important feature of the work is an annotated bibliographical appendix, giving a list of the works and papers referred to in the body of the work, to which is added a list of the principal localities where collections have been made. An 'Introduction' of eight pages treats of the avifauna analytically, in reference to the numerical representation of the various families and orders, as compared with the Neotropical region at large.

As stated in our notice of the former volume, we regret that it was deemed necessary to restrict the technical portions of the work to brief diagnoses of the adult bird, with rarely any reference to immature phases or other variations of plumage, since a fuller treatment of this part of the subject would have made the work far more useful as a handbook of Argentine ornithology. At page 11 of Volume II we notice a singular *lapsus pennæ*, the English name of *Chordeiles virginianus* (Gm.) being given as "Whip-poor-will" in the heading, while in the biographical text the species is referred to as "the well-known Whip-poor-will of the United States!"

* Argentine Ornithology. | A | Descriptive Catalogue | of the | Birds of the Argentine Republic. | By | P. L. Slater, M. A., Ph. D., F. R. S., Etc. | With Notes on their Habits | By | W. H. Hudson, C. M. Z. S., late of Buenos Ayres. | [Vignette] Burmeister's Cariama. | — | Volume II. | — | London: | R. H. Porter, 18 Princes Street, Cavendish Square, W. | 1889.—8vo, pp. i-xxiv+1-251, pll. col. xi-xx.

As already noted, Mr. Barrows's papers on the 'Birds of the Lower Uruguay,' published a few years since in this journal, are freely cited, but unfortunately his species are not always correctly synonymized by our authors—a mistake in most cases excusable, since there is generally no clew, except the name, to the species really meant. Having recently had in hand many of Mr. Barrows's specimens of the more difficult groups, it may be well, in the interest of future writers, to correctly allocate some of Mr. Barrows's species thus misplaced in the 'Argentine Ornithology.'

Cyclorkhis viridis Barrows is naturally placed (Vol. I, p. 24) under *C. altirostris* Salv. [= *C. viridis* (Vieill.)], but Mr. Barrows's specimens prove to be true *C. ochrocephala*.

Elainea albiceps Barrows is *Empidagra suiriri* (Vieill.), and thus of course is naturally but wrongly placed (Vol. I, p. 145) under *E. albiceps* (d'Orb. and Lafr.), which is Mr. Barrows's *E. modesta*.

Leptasthenura ægithaloides Barrows is *L. platensis* Reich., a form Mr. Sclater doubtless does not admit. Mr. Barrows's specimens, however, represent a bird very different from the true *L. ægithaloides* of Chili.

Phacellodomus ruber Barrows proves, on comparison of Barrows's specimens with Lafresnaye's types, to be the true *P. striaticollis* (d'Orb. and Lafr.).

It is but fair to say that actual errors in the identification of Mr. Barrows's species are chargeable either to myself or to Dr. Burmeister, whose opinions Mr. Barrows accepted (cf. Auk, I, p. 319).—J. A. A.

Gould's 'Birds of New Guinea.'—In 1871 the late Mr. John Gould began the publication of a work in five volumes folio, on the Birds of New Guinea and adjacent islands,* to be issued in twenty-five parts. At the time of Mr. Gould's death, in 1873, only twelve of the parts had been issued, the thirteen remaining parts having been prepared by Mr. R. Bowdler Sharpe, the eminent ornithologist in charge of the Department of Birds at the British Museum. The work contains 320 plates, in the excellent style of Gould's other well-known large folio works on the Birds of Asia, Australia, Great Britain, etc. The 'Introduction,' by Mr. Sharpe, gives a historical summary of ornithological exploration in New Guinea and the Papuan Islands. The few Australian birds included, form, as it were, a further supplement to his 'Birds of Australia.' A page of letter press accompanies each plate, describing the species figured, and giving a short sketch of its history. The many birds of gorgeous plumage inhabiting New Guinea and neighboring Islands—as the numerous species of Parrots, Birds of Paradise, and Fruit Pigeons—furnish wonderfully striking subjects for illustration. To say that the work is in Gould's well-known style sufficiently indicates the high character of this magnificent contribution to ornithology.—J. A. A.

* The Birds of New Guinea | and the adjacent Papuan Islands, | including any new species that may be discovered in Australia. By | John Gould, F. R. S., etc. Part [s] I-[XXV]. | London, Dec. 1875-Dec. 1888.

Bird Migration in the Mississippi Valley, by W. W. Cooke.—Taking up this most interesting little volume, we desire in the very first place to express our admiration for the system and method of work. Whilst agreeing with many of the statements, theoretical or otherwise, we think it desirable to take up the whole of the preliminary chapters in detail, page by page, whether we agree or not.

Page 11. "Inherited Experience": "The habit was transmitted from parent to offspring": "governing impulse."—May we suggest:—Yes; inherited instinct aided by education, or "educated instinct," and guidance of young by old—as a more natural explanation than the other? "Love of nesting ground, the foundation of desire for migration."—We cannot agree with the expression "foundation," etc.,—but we perfectly agree with the concluding clauses of the same paragraph, as to "memory inherited": and we also believe, that *choice of situation*, and *visual selection* must not be left out of the question. We quite agree that "strong home-love" is an important factor, but it is aided by memory, the suitability of the site, and great powers of vision (therefore selection) by the passing migrants, young or old.

The statement, in the editorial foot-note to same page (p. 11) that "Birds desert their winter homes because the food supply fails" seems to me to demand a great deal of proof. But the following condition seems to me more deserving of attention—viz., *temperature as a first cause*; and that "climatal conditions become unsuited to their needs." Of course, all dovetail into one another—temperature, insect-life, bird-life, conditions of existence, etc., motherly and parental instincts, incubation considerations; and a *large question* is at once opened up. To arrive at first causes means, first, simply accumulation of materials.

At p. 12.—The question of the great migration from north and south of certain Waders and Warblers passing over great distances seems to us simply to depend upon *temperatures* and *consequences* of temperatures. The Knot (*Tringa canutus*) finds a certain *normal* temperature and conditions of life, at, or nearest to, both poles, north and south.

Page 12. Undoubtedly we consider that "Birds discern approaching meteorological changes." The ornithologists who *deny* it, must *deny* it, upon *exceptions* to the rule, which have come under their own cognizance. Most sportsmen know how irritable, how uneasy, how watchful and abrupt are the movements of wild fowl on the *eve* of a change of weather, or even for a day or two before it is potent to human senses. Even how sportsmen (of experience), when they spring Snipe in wisps wide and wild, which mounting high in air direct their after flight directly away, think it high time to *wire* for fresh supplies of cartridges, in anticipation of an 'Arctic winter,' and a long crusade of snow and frost. But we doubt, except on *rare occasions*, if spring storms can be gauged in their effects as accurately as autumn storms can.

The concluding argument of this portion—at p. 12—must, we think, be considered subject to the others—I mean the considerations of *age* of individuals, etc. Lower animals, such as even the "hardier waterfowl (Ducks

and Geese)" are not infallible, any more than human beings are infallible in their judgments; and it really cannot be argued that they can *always* foresee these changes. It is well authenticated that in the Outer Hebrides Wild Geese on their spring migration northwards are greatly dependent on the actual personal guidance of their parents or guardians. An old bird distinctly leading detachments, from one favorite feeding or resting place to another and returning south again in cases of further services being required has been for ages known, and well observed by competent observers! What would a flock of geese do if their leader were shot or otherwise lost to them, and the flock were all young birds? Certain instincts *would* guide them no doubt, but *not too accurately*.

Returning to the former subject of "discernment of approaching climatal conditions" I would like to recall the often-observed fact of the disappearance of *mosquitoes* fully *half an hour* before the first advent of the north wind on the tundras of northeastern Europe, as observed, to our intense relief, by Seebohm and myself! I say, before the slightest suspicion of approaching north wind was perceptible to our senses, the mosquitoes suddenly dropped senseless and *stingless* into the wild grasses of the tundra. With a sigh of relief, we mutually whispered at last, as we lay watching—say a Plover or a Stint to its nest, "Ah! the north wind!" Then came the hurry of the birds up to cover their nearly incubated eggs, in the shallow depressions of the tundra.

Page 13. Now comes a most interesting question. *First*, if old birds arrive first, they keep bold and jealous charge of their own old nesting places. But if young birds arrive first, they are driven away, before they can breed, by the older ones if the latter really do ever arrive later. I believe the *old birds* always arrive first. But in America, where the trend of the migration is from north to south and south to north, over continuous areas of land, and where every valley and depression soon becomes known and recognized by the migrants, *old and young* travel at the *same elevation*, or much more approximately so than in Europe. But in Europe where the trend of the migration is over both land and sea and persistent in its east to west direction in autumn, and *vice versa* in spring (at least as regards land birds), I believe the *old* birds travel at a much higher elevation than the young birds, and travel more freely, still guarding the young beneath them. We have still to learn much as to the vision of birds, old and young, horizontal and vertical, above and below, and we know comparatively little about their power in these respects; except that an American astronomer is stated to have identified Curlews in the field of his telescope at over four miles distance above the earth's surface, traversing the disk of the moon.

If the American statement that old birds invariably predate the young; and the European statement that the young predate the old, are equally true, may not the variance be explained thus:—

In America the trend of the *land* and *migration* is continuous north and south. Therefore, the old and young *can* travel over known courses at similar elevations, the old *guiding* the young.

In Europe the trend of the *land* and *migration* is *discontinuous*, east and west; and therefore the older, *stronger-flying* birds ascend to higher levels to see over both land and sea, whilst the young birds keep lower down, but by *mutual* powers of vision are still guided by the higher-flying old birds above. Reaching land, the young birds sink exhausted it may be, but the 'first wave' of old birds passes on upon their further journey. More could be urged on this aspect of the question, but we refrain in fear of occupying too much valuable space. One more remark: Fogs and mists and haze and darkness, blot out the landmarks by sea from even these high-flying pioneers, and as described by Herr Gätke, "in the clap of a hand, in a second of time"—or words to that effect, or nearly—the island of Heligoland, off the entrance to the Elbe, is crowded by birds, in *tens of thousands*, when the fog lies heavy around.

We have only taken 13 pages of the article by Mr. Cooke as text for our reply, but there are many valuable and interesting points brought out and referred to in subsequent pages, worthy of equal attention. If our notes can be of use, we are happy to contribute even the smallest mite. If it should be considered desirable, further remarks upon pp. 14 *et seq.* might follow, but what *has already been said*, we believe, will be suggestive of what *might* be said again, and reasons and arguments adduced for the formation of what we in Europe call '*rushes*' and you in America, the "*arrival of the bulk*"—from your own showing.—J. A. HARVIE-BROWN, M. B. O. U., C. M. A. O. U.

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Tschusi zu Schmidhoffen, V. (1) Richtigstellung der Notiz "*Ardea bubulcus* iz Obedske bare." (2) Kronprinz Erzherzog Rudolf als Ornithologe. (Die Schwalbe, XIII Jahr., No. 6.)

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GENERAL NOTES.

The Florida Gallinule Breeding in Vermont.—Early in June, the present year, I left New York City for a short collecting trip in Vermont, in quest of, among other things, the Florida Gallinule (*Gallinula galeata*), in the hope of securing the birds, their nest and eggs, and the proper access-

ories, for a group piece for the American Museum of Natural History. On visiting the locality where in former years I had found the species breeding, my disappointment was very great to find the birds had departed. This locality is Lake Bomaseen, situated about sixteen miles from Rutland, Vermont. My first nest of these birds I found at this place, May 28, 1881. It was built in the cat-tail flags, upon a small, boggy island, quite a distance from the main land. It was slightly elevated above the water, and composed entirely of dry flags, and contained nine fresh eggs. The next season, 1882, I made two trips to the breeding ground, and found one nest, May 28, containing five eggs. This I left, and returned June 5, and found, not far from the first nest, a second one. These were situated on boggy ground connected with the main land. Both nests looked near enough alike to have been made by the same bird. The same kind of material was used as in the nest found in 1881. The first nest contained seven eggs, and the second one eleven. One of the birds was taken.

The next year, 1883, but one nest was found, near the place where two were found the year before. It contained nine eggs, and both of the birds could have been easily taken.

This year, after hunting for two days without result, a gentleman near where I was staying told me he thought a Mr. Johnson, of Hydeville, Vt., had taken the nest this season. When I returned to New York, I found, through Mr. Allen, that such was the case, Mr. Allen having received a letter from him reporting his discovery.

I do not think that more than one pair of birds breed at this lake. It is very probable that others may breed at Fort Cassan and Lambus Point, Lake Champlain.—JENNESS RICHARDSON, *Am. Mus. Nat. Hist.*, *New York City*.

Under date of Hydeville, Vt., June 6, 1889, Mr. A. J. Johnson wrote me as follows: "I wish to establish the fact of the breeding of the Florida Gallinule (*Gallinula galeata*) in the State of Vermont, having found a nest containing ten eggs in Lake Bomaseen, Castleton, Vt. It was built in a clump of rushes, and the nest also was made of the same. I saw the bird, but did not shoot it. Two years ago I shot one near the same place and found the nest. There must be several more breeding near this place, for I heard quite a number. I cannot find any record of this species breeding in Vermont in any book I have."

While the occurrence of the Florida Gallinule in Vermont is on record, the above seem to be the first reports of its breeding in that State.—J. A. ALLEN, *Am. Mus. Nat. Hist.*, *New York City*.

The Killdeer Plover (*Ægialitis vocifera*) wintering on the New England Coast.—On the 28th of January, 1889, I discovered seven Killdeer Plovers in a small meadow in Marblehead, where they remained throughout the winter. I visited the place four times in February, and found them always present. My last sight of them was March 1 (six birds), but Mr. Walter Faxon, who had previously seen them on several occasions, found

a single individual as late as March 7. They were doubtless a part of the great flock blown upon the New England coast by the storm of November 25-27, as already more than once mentioned in 'The Auk.' The season was very open and mild (although February averaged rather colder than usual), and the spot was exceptionally favorable. So far as I could judge, the birds suffered no inconvenience from what we may presume to have been a somewhat involuntary sojourn in this latitude.

Mrs. Celia Thaxter assures me that the Killdeers remained at the Isles of Shoals, also, throughout the winter,—“till the very last week in February, growing fewer and fewer and finally disappearing altogether.” Her authorities for the statement are her brother and another resident of the Shoals, one of whom, early in December, shot a bird, parts of which (a wing, etc.) she sent to me for identification.—BRADFORD TORREY, *Melrose Highlands, Mass.*

The Wild Turkey in the North Carolina Mountains.—During the month of July, 1888, the writer was one of a small party which went over the country described by Mr. W. A. Jeffries in the April 'Auk.' Our route was about two hundred miles long, and we spent a month on the way, camping and tramping. We started from Sylva, and, if I mistake not, our driver was the same one employed by him; at least he told us of going through that country with two “bird men” in the spring.

Our object was to collect the plants of the region, and we paid little attention to the birds. We went from Sylva to Highlands by way of the High Falls of the Tuckasee and Cashier's Valley. At the latter place we met a very intelligent gentleman,—the owner of a gold mine in the vicinity. He pointed out to us the spot where he had the day before seen an old Turkey with a large brood of young cross the road. They were not considered uncommon in the valley. From Highlands we went to Franklin and then on to the Nontehala Mountains, climbing Wayoh Bald on our way. Not far from the summit, by the trail, we found several places where the Turkeys had been scratching, evidently only a few hours before. A day or two later, two of the boys went hunting with a native guide. They found no Turkeys though they saw plenty of ‘signs’. From our conversations with the people I think that while the Turkeys are not perhaps abundant, they can scarcely be called rare.—L. N. JOHNSON, *Evansston, Illinois.*

Buteo brachyurus in Florida.—A fine adult female of this species has been presented to me by Mr. Geo. A. Boardman. The specimen was found by Mr. Boardman in a barrel of millinery skins in a store in Jacksonville, Florida. The barrel contained a number of badly prepared specimens of *Syrnium nebulosum alleni* and *Ajaja ajaja* besides Herons and Waders. The specimen was minus its feet, but was otherwise in good condition. The storekeeper claimed to have received the birds from Charlotte Harbor.—CHAS. B. CORY, *Boston, Mass.*

A Hawk bearing a Legend.—Mr. James M. Knight, keeper of the light-house at Cape Canaveral, Florida, picked up a dead Duck Hawk (*Falco peregrinus anatum*) on the beach near his station, December 10, 1888. He first noticed the Hawk the day before, and saw that it was in feeble condition. On examining it, he found an old fashioned tin cap box attached to its neck by means of a wire. Undoubtedly this had interfered with the capture and deglutition of its food, and as a consequence, the bird was much emaciated. On opening the cap box a piece of paper was found bearing the following legend: "Oct. 10, '88; Schr. Gov. Hall, Frying Pan L't Ship, U. S. A; 7 mile wind, N. E. by E., overcast and moderate.

JOHN CAIN, JR., 516 Linden St., Camden, N. J.'.

Mr. Cain, who liberated the bird, wrote Mr. Knight as follows in regard to the occurrence: "This is the second Hawk that I have wired, but the first heard from. They often come on board at sea, and for curiosity we often wire them to see in what part of the country we may hear from them."

Frying Pan Shoals Light Ship lies off Cape Fear, North Carolina, a little less than 400 miles from Cape Canaveral, Florida.

The bird lived with this encumbrance about its neck just two months.

For the above facts I am indebted to Lieut. Commander R. D. Hitchcock, Light-House Inspector, 6th District, who sent me all the correspondence on the subject, and also forwarded the wing and foot of the Hawk for positive identification.—C. HART MERRIAM, *Washington, D. C.*

Micropallas whitneyi, Elf Owl, taken in Texas.—I have just purchased from Goodale and Frazar, Boston, a fine male specimen of *Micropallas whitneyi*, taken by Mr. F. B. Armstrong in Hidalgo Co., Texas, April 5, 1889. I quote from Messrs. Goodale and Frazar, in answer to my inquiries: "Date and locality positive. The Owl was taken by Armstrong while camped five miles from Hidalgo, and is the only one he sent us. We were surprised to see the bird from Texas, as we did not know that it got as far east as that, and think it is a very good record. He said nothing about when he shot it or whether it was breeding, but when we write to him again we will make inquiries." This is a bird unexpected in Texas, and especially unlooked for at a low altitude near the Gulf Coast, so far removed from the giant cactus which it occupies so frequently in Arizona.—GEO. B. SENNETT, *Erie, Pa.*

Antrostomus vociferus in Porto Rico.—A box of birds lately sent to me from Porto Rico by Mr. Clark P. Streater contained a female specimen of *A. vociferus*. This is, I believe, the first West Indian record for this species.—CHARLES B. CORY, *Boston, Mass.*

The Olivaceous Flycatcher and Phoebe in Colorado.—At Fort Lyon, Colorado, I took, May 11, 1883, a male *Myiarchus lawrencei olivaceus*, and on April 20, 1884, a male *Sayornis phoebe*. These birds have lately been submitted by Dr. J. C. Merrill, U. S. A., to Mr. William Brewster, who

says there is no Colorado record for the first-named bird, and speaking from recollection, thinks there is none for the second. The birds will soon be in Mr. Brewster's collection.—*F. W. THORNE, Capt. 22nd Inf., Fort Keogh, Montana.* P 1.

The Raven as a South Carolinian. — In 1834, Audubon wrote of the Raven in his 'Ornithological Biography' (Vol. II, p. 2). "a few are known to breed in the mountainous portions of South Carolina, but instances of this kind are rare, and are occasioned merely by the security afforded by inaccessible precipices, in which they may rear their young" Again, on p. 7, he says, "I have already stated that some Ravens breed as far south as the Carolinas. The place to which they resort for this purpose is called the Table Mountain, which is situated in the district of Pendleton." Since the above was penned, the old "district" of Pendleton has been partitioned, and the portion occupied by Table Rock now forms a part of the County of Pickens.

During the early part of July, 1886, I visited this section, and made many inquiries respecting the Raven. I found it was a bird every one was familiar with, and that it continued to breed, not only at Table Rock, but also on the cliffs of the neighboring mountains. In June of the following year I visited the locality again. As I was anxious to devote all my time to the study of the smaller birds, I did not make an attempt, personally, to secure a specimen, but contented myself with offering a liberal reward for one. I was recalled home, however, after a week, and was unable to return to the mountains until June, 1888. In the meantime appeared Mr. Ridgway's 'Manual of North American Birds' with its definition of the new subspecies *principalis*. The statement concerning the uncertainty, through lack of specimens, as to the form inhabiting the eastern United States, stimulated my desire for a better knowledge of our alpine bird. During my last visit I sufficiently increased the bounty offered to put all the hunters of the region on the lookout, but it was not until the 27th of the following January that a specimen was secured, which was shot in a cove near Mt. Pinnacle while feeding on the carcass of a sheep. This long interval was not owing to the great rarity of the Ravens, but to their excessive wariness. I had been assured by all my informants that to capture one was a feat of no small difficulty, and that the best opportunity would be afforded where there was carrion.

A study of the specimen procured led to the conclusion that it could not properly be assigned to either *principalis* or *sinuatus*, it being fairly midway between these two manifestations. Desiring the authoritative expression of the describer of the new race, I sent the bird to Mr. Ridgway, and his identification affirmed the position taken by myself as to its intermediate character. That an example of this nature should occur is not surprising when we consider that the upper country of South Carolina forms a sort of neutral ground where birds of the East, and many that are characteristic of the West, meet. A single specimen, from this region, of any bird having a western conspecific representative is not sufficient evi-

dence to indicate what subspecies is the prevailing one. Whether the Ravens of the Carolinian highlands belong to the northern or to the southwestern form, or whether both varieties occur, or whether they will be found to be so nearly intermediate as not to be susceptible of practicable separation, alone can be determined by the examination of a considerable series obtained at different seasons of the year.

That this species had not entirely deserted the Piedmont region at the time of Audubon's writing, I have lately obtained proof. A friend, still in active life, who has long been an intelligent observer of birds, informs me that between fifty and sixty years ago, the Raven was "plentiful" in the portions of Chester and York Counties contiguous to Broad River which has its source in the mountains of North Carolina about fifty miles distant. None, however, have been seen by him since the War. In Mill's 'Statistics of South Carolina' (1826), in the brief account of the birds of Newberry (also on Broad River, but further south in the Piedmont Belt), it is stated that "The Raven has also left this part of the country." Dr. Coues included this species in his 'Synopsis of the Birds of South Carolina' (1868) on the authority of Professor Gibbes, whose list of birds (Tuomey's 'Report on the Geology of South Carolina,' 1848) was based on Audubon's 'Synopsis of the Birds of North America.' Dr. Coues further adds, "I am under the impression that I once saw an individual at Columbia, but cannot speak positively." Weight is added to this statement by the situation of Columbia at the confluence of the Broad and Saluda Rivers, as the south fork of this latter stream, near its head, flows at the base of Table Rock, somewhat over a hundred miles away.—LEVERETT M. LOOMIS, *Chester, S. C.*

The Lapland Longspur near Chicago in June.—On June 14 of the present year (1889), I took an adult female *Calcarius lapponicus* in full summer plumage at Sheffield, Lake Co., Indiana, which is about sixteen miles southeast of Chicago, on Lake Michigan.

The bird was alone and seemed to be thoroughly at home with her surroundings, being shot near the sand hills close to the lake shore. She was quite fat and appeared to be in excellent condition, but the ovaries showed no approach of the breeding season.—B. T. GAULT, *Chicago, Ill.*

Helminthophila bachmani on the East Coast of Florida.—March 21, 1889, at 'Oak Lodge,' the residence of Mr. C. F. Latham, on the east peninsula opposite Micco, Brevard Co., Florida, it was the writer's rare good fortune to secure two specimens, male and female, of this recently resurrected species.

The ovaries of the female showed only slight traces of development, and this, in addition to the fact that the birds were evidently part of the flock of early migrating Warblers in which they were found, indicates, as might be expected, a more northern breeding ground than the scene of their capture, and considerably increases the area of their probable summer home. Taken in connection with the original discovery of the species by

Dr. Bachman at Charleston, it renders it not unlikely that they still may be found nesting on the Atlantic Coast, in which case, perhaps, it might be well for us to give more heed to Mr. Bailey's record.*—FRANK M. CHAPMAN, *Am. Mus. of Nat. Hist., New York City.*

The Interbreeding of *Helminthophila pinus* and *H. chrysoptera*.—On June 13, 1889, Mr. Samuel Robinson, who has collected with me here for the past fifteen years, noticed a male *Helminthophila pinus*, with food in its bill, fly and disappear at the foot of a small alder. A female *Helminthophila chrysoptera* soon appeared, also with food, and was lost to sight at the same spot as the other bird. On going to the locality five young birds flew from the nest and alighted on the bushes in the immediate vicinity. Both parent birds were soon feeding the young again. He shot the old birds and secured all the young, which, together with the nest, are in my cabinet.

The locality was ground sloping toward a swampy thicket and covered with a young growth of alders. A few maple trees were in the vicinity. The nest was on the ground at the foot of a small alder and partly concealed by overhanging ferns and weeds. It is composed externally of oak leaves and lined with grape-vine bark, no other materials being used.

The male (*pinus*) is a very bright specimen with white wing-bars, edged with yellow. The female (*chrysoptera*) is strongly marked with yellow below, the wing-bars being exceptionally rich with the same color.

The young, two males and three females, are all similar, and have the head, neck, chest, sides and back olive-green. Abdomen olive-yellow. Remiges like adult *pinus*. Two conspicuous wing-bars of light olive, edged with yellow.—JNO. H. SAGE, *Portland, Conn.*

***Dendroica coronata* Feeding upon Oranges.**—While at Enterprise, Florida, last February, I twice saw Yellow-rumped Warblers eating the pulp of sweet oranges. In the first instance the orange was one that had fallen from a cart into the street and had afterwards been crushed so that the pulp was exposed. The little bird tugged at it with all its strength and seemed to have much difficulty in separating pieces small enough to swallow. Some of these were fully an inch long and as large around as a lead pencil. In the second instance the orange had merely cracked open by falling from the tree to the ground beneath. During the entire month of February the orange groves in the vicinity of Enterprise were frequented by larger numbers of these Warblers than I found in other places, and I have little doubt that the fallen oranges formed the chief attraction.—WILLIAM BREWSTER, *Cambridge, Mass.*

Recent Capture of Kirtland's Warbler in Michigan, and other Notes.—A specimen of Kirtland's Warbler (*Dendroica kirtlandi*), female, was secured by Mr. Knapp of Ann Arbor, Michigan, in the latter part of April or first of May, 1888, at Ann Arbor.

*Bull. N. O. C., Vol. VIII, p. 38.

It may interest the readers of 'The Auk' to hear of the occurrence of the Towhee (*Pipilo erythrophthalmus*), female, at Ann Arbor, in the latter part of December, and again in the early part of March, a foot of snow being on the ground at the latter date.

A small flock of Purple Finches (*Carpodacus purpureus*) was seen on May 24, and a number of individuals secured. It is considered a rare bird in that locality.

Last spring also, I had brought to me for examination an egg of a common fowl about four inches in its long diameter, and the short diameter nearly equal to four inches. The shell was of average thickness, shell membranes normal. This egg not only contained white and yolk, but also a second egg of the usual size, with shell, membranes, and contents perfect. The shell of the inclosed egg was extremely thick. An interpretation of this phenomenon is easy enough; the smaller, normal-sized egg was evidently detained in the oviduct when just about to be laid, and then, having worked back to the region of the oviduct where the shell membrane is formed, met the descending yolk and white of the larger egg. A membrane was then deposited, not only around this second egg, but also around the first formed perfect egg; then both descended the oviduct, a shell was formed about them both, and the resulting 'double egg' expelled. The failure to lay the first egg may have been due to some temporary weakness of the muscles employed.—F. L. WASHBURN, Cambridge, Mass.

Polioptila plumbea at Palm Springs, California.—During the latter part of April I spent a week collecting at Palm Springs in company with Mr. W. W. Price, and together we secured eight specimens of *Polioptila plumbea*, the first taken west of the Colorado River, I believe. Palm Springs is situated in the extreme western end of the Colorado Desert, about midway between the coast and the Colorado River, seven miles south of Seven Palms, a station on the Southern Pacific Railroad, and about seventy miles from San Bernardino. *P. plumbea* were found in a dry sandy wash near the settlement, in the tangled thickets of the creosote brush (*Larrea mexicana*). They undoubtedly breed there, as two young scarcely able to fly were secured, and others seen. Three males had the black cap fully developed.

Harporhynchus lecontei and *Callipepla gambeli* were found with young, but very shy.—FRED. O. JOHNSON, Riverside, California.

Winter Notes from Portland, Maine. — The exceptionally mild winter of 1888-89 was not without its effect on the birds about Portland. During the fall migration a great many of the Sparrows and Warblers prolonged their stay a week or ten days, or even longer, beyond their usual date. A noteworthy case was that *Dendroica coronata* which remained until December 6. There appears to be no previous December record of this

species in Maine, though it has once been detected at Pine Point in January.*

Robins wintered in unusual numbers in and about the city.

A single flock of Cedarbirds (about twenty in number) appeared on February 6.

But the most interesting result of the mild season was the wintering of *Colaptes auratus*. As a rule this species withdraws very early in November, although my brother saw a straggler on November 13, 1881.† Yet while most of the birds disappeared in the autumn of 1888 about the usual time, I saw a single individual (perhaps the same one) almost every day up to December 18. After that date I met with no more until January 1, 1889, when I found a bird feeding on the berries of a mountain-ash tree within the City limits. A friend reported one on Cape Elizabeth on January 3, and Mr. Luther Redlon, of Portland, an accurate observer of birds, saw one in the Portland 'Oaks' on February 10. I met with one again on February 16, and also on the 25th of the same month. From the latter date up to March 1, not a day passed without my meeting with one. It may be worth while to note that all the birds seen after the first of November were males. So far as I am aware the Flicker has not before been known to winter in Maine, though Mr. Everett Smith has recorded ‡ the capture of a single bird at Fort Popham, in January, 1885.—JOHN CLIFFORD BROWN, *Portland, Maine*.

CORRESPONDENCE.

A Suggestion to the A. O. U. Committee on the Revision of the Check-List of North American Birds.

TO THE EDITORS OF THE AUK:

Dear Sirs:—Perhaps no more important and beneficial advance has ever been made in North American ornithology than the publication by the American Ornithologists' Union of a 'Check-List' which at once became an authoritative standard and assures us of a uniformity and probable fixity of nomenclature before impossible. With intense satisfaction, therefore, should we view a continuance of this work in the labors of the committee whose duty it has become to annually revise the productions of the preceding year and give to the Union the results of their deliberations.

But with how much more pleasure should we regard this committee's

* See Goodale, Auk, Vol. II, p. 16.

† See Proc. Port. Soc. Nat. Hist., Dec., 1882.

‡ Forest and Stream, February 5, 1885.

labors, if not alone the results, but also the methods by which they were reached, were given to the the public. To the ornithologist of today, this is perhaps of minor importance. Still he may desire to know why certain proposed races or species were rejected, while the ornithologist of the future, unaware of the facts which have influenced each decision, may desire to judge for himself, and the non-appearance of any data which have governed this committee in its examinations, causing them to ignore certain proposed changes and alter or adopt others, will, to say the least, be to him somewhat confusing. Would it not be well, therefore, if in addition to its report, this committee also publish an abstract of its proceedings, either as an appendix, as a special paper in this magazine, or in such other manner as it may deem best?

Very respectfully,

FRANK M. CHAPMAN.

Am. Mus. Nat. Hist., New York City.

NOTES AND NEWS.

DR. JEROME HENRY KIDDER, one of the original members of the A. O. U., died in Washington, D. C., on April 8, in his forty-ninth year, after a short illness from pneumonia. Dr. Kidder was honored with a membership in the A. O. U. for his very creditable ornithological work in connection with the 'Transit of Venus Expedition to Kerguelen Island in 1874, to which he acted as surgeon and naturalist. His report, prepared in conjunction with Dr. Coues, was published in 1876, as Bulletin No. 3 of the U. S. National Museum, and entitled 'Contributions to the Natural History of Kerguelen Island,' and 'A Study of *Chionis minor* with reference to its Structure and Systematic Position'. Dr. Kidder was graduated at Harvard College in 1862, and from this date till 1883 was in the military and naval service of the United States, first as a military cadet in the hospitals near Baltimore during the War of the Rebellion, and later as assistant surgeon and surgeon in the U. S. Navy. In 1883 he resigned his commission for special service with the U. S. Fish Commission under Professor Baird. Later he was made Assistant Commissioner under Professor Goode, but soon after resigned to accept an important position in the Smithsonian Institution. In later years his special line of professional work was in the direction of sanitation and hygiene, in which he made many important researches. About a year before his death he sent in his resignation as a member of the A. O. U., on the very conscientious ground that as he was no longer doing work in ornithology he felt it was not right for him to hold a position of honor to which others were so much better entitled. Personally Dr. Kidder was a great favorite with his social and scientific associates, to whom his sudden death was a great shock.

THE first edition of 'The Birds of Pennsylvania,' by Dr. B. H. Warren, State Ornithologist of Pennsylvania, having been quickly exhausted, the Legislature of that State has directed Dr. Warren to prepare a second and revised edition of this excellent Manual (see *Auk*, VI, p. 170), 19,000 copies of which are for gratuitous distribution to the schools and agricultural societies of the State. In order to make it as complete and trustworthy as possible, Dr. Warren has already issued a circular to the ornithologists of the State, soliciting their cooperation in perfecting the work. The circular is accompanied by a 'Provisional List' of the birds of Pennsylvania, with suggestions as to the character of the information most desired. With the increased appropriation for the work, and the systematic way Dr. Warren has entered upon his congenial task, a much more elaborate manual must be the result—one as creditable to the author, we have no doubt, as is the liberal policy of the Legislature, toward science and the education of the people in ornithological matters, to the great State of Pennsylvania.

The intelligent interest in natural history shown by the State of Pennsylvania is further manifested in an appropriation of \$50,000 to the Philadelphia Academy of Natural Sciences for an addition to its museum building; and also in placing in the hands of its ornithologist, Dr. B. H. Warren, the sum of \$3600 for a complete collection of the birds and mammals of the State. It has also enacted an excellent statute for the protection of song and wild birds, similar in general character to the measure proposed and advocated by the A.O.U. Committee on Bird Protection two years ago. In fact, the passage of so creditable an act is doubtless due largely to the efforts and influence of Dr. Warren and the Chairman of the A. O. U. Committee, Mr. Sennett, both of whom have given public addresses on the subject of Bird Protection in different parts of the State. Further intelligent action in the same general line is the amendment of the notorious 'Scalp Act' so as to exempt Hawks and Owls from its provisions.

SOME time since (*Auk*, July, 1886, p. 415) we called attention to an announcement of a prospectus of a work in the German language on North American birds, by Mr. H. Nehrling, an Active Member of the A. O. U., and the author of many papers on North American birds, including a paper on the birds of southern Texas, published in the 'Bulletin' of the Nuttall Ornithological Club, and various local lists and popular articles in the German ornithological journals. It now gives us pleasure to say that the publication of the work has begun, and that it will appear in English, under the title 'North American Birds,' as well as in German. The work will be issued in twelve parts, of 40 to 48 quarto pages each, "with 36 colored plates after water color paintings by Prof. Robert Ridgway, of Washington, D. C., Prof. A. Göring, Leipzig, and Gustav Murtzel, Berlin." It is published at one dollar per part, by Geo. Brumder, of Milwaukee, Wis., the completion of the work being promised during the fall of 1890. We have already received Part 1 of both editions, and find it a work we can heartily commend, as a popular treatise on our birds.

The English version seems not to be a strict translation of the German, but rather a paraphrase, with some omissions. It is to be hoped that, through haste of preparation, the English text will not be suffered to fall below the standard of the German edition.

The biographies are based primarily on the author's own field experiences, and are written in a graphic yet simple and pleasing style. The best authorities, however, are freely quoted. The technical matter is brief, and printed in smaller type at the end of the biographies. The colored illustrations are effective and highly creditable, considering the low price of the work, while the paper and typography are excellent. We trust the work will meet with the success it so well deserves.

THE REPORT of the Ornithologist and Mammalogist of the U. S. Department of Agriculture, Dr. C. Hart Merriam, for the year 1888, contains an interesting account of the scope and character of the work of the Division of Economic Ornithology and Mammalogy, as conducted during the last year. The investigations of a strictly economic character relate especially to the food of Hawks and Owls, Crows, Blackbirds, the Bobolink, the Mink, and the Pocket Gophers and Ground Squirrels of the West, respecting each of which subjects much material has been gathered and partially elaborated, a special 'Bulletin' on the food of Hawks and Owls by Dr. A. K. Fisher, being nearly ready for the press, while the present report contains papers on the Mink, by Dr. Merriam, on the food of Crows, by Prof. Walter B. Barrows, and on the food of the Sparrow Hawk and Short-eared Owl, by Dr. Fisher. Professor Barrows also has a paper on the Rose-breasted Grosbeak as an enemy of the potato-bug. Dr. Merriam has an interesting report on the introduction of several species of Asiatic Pheasants into Vancouver Island and at various points in Oregon and Washington. The Mongolian or Ring Pheasant (*Phasianus torquatus*) seems to have multiplied rapidly, and fears are already entertained that it may eventually prove a pest, at least to farmers.

The work of the Division has already outgrown the appropriations made for carrying it on, and is much retarded through lack of a larger force of assistants for tabulating and elaborating the returns received in answer to the thousands of schedules of inquiry sent out semi-annually to observers in all parts of the country. The Chief of the Division sets forth very forcibly the importance of a knowledge of the geographical distribution of species, and it is to be hoped that our Congressmen will show their appreciation of this important subject in larger appropriations for carrying on the work.

The report indicates excellent progress in the several lines of special work, which are thoroughly systematized and energetically prosecuted.

AN AUDUBON ORNITHOLOGICAL CLUB has been organized in Chicago, with Mr. J. M. Howard as President. At present there are seven active members.

THE AUK:

A QUARTERLY JOURNAL OF ORNITHOLOGY.

VOL. VI.

OCTOBER, 1889.

No. 4

THE PRESENT STATUS OF THE WILD PIGEON (*ECTOPISTES MIGRATORIUS*) AS A BIRD OF THE UNITED STATES, WITH SOME NOTES ON ITS HABITS.

BY WILLIAM BREWSTER.

IN THE SPRING of 1888 my friend Captain Bendire wrote me that he had received news from a correspondent in central Michigan to the effect that Wild Pigeons had arrived there in large numbers and were preparing to nest. Acting on this information, I started at once, in company with Mr. Jonathan Dwight, Jr., to visit the expected 'nesting' and learn as much as possible about the habits of the breeding birds, as well as to secure specimens of their skins and eggs.

On reaching Cadillac, Michigan, May 8, we found that large flocks of Pigeons had passed there late in April, while there were reports of similar flights from almost every county in the southern part of the State. Although most of the birds had passed on before our arrival, the professional Pigeon netters, confident that they would finally breed somewhere in the southern peninsula, were busily engaged getting their nets and other apparatus in order for an extensive campaign against the poor birds.

We were assured that as soon as the breeding colony became established, the fact would be known all over the State, and there would be no difficulty in ascertaining its precise location. Accordingly we waited at Cadillac about two weeks during which

time we were in correspondence with netters in different parts of the region. No news came, however, and one by one the netters lost heart, until finally most of them agreed that the Pigeons had gone to the far North beyond the reach of mail and telegraphic communication. As a last hope, we went, on May 15, to Oden, in the northern part of the southern peninsula, about twenty miles south of the Straits of Mackinac. Here we found that there had been, as elsewhere in Michigan, a heavy flight of birds in the latter part of April, but that all had passed on. Thus our trip proved a failure as far as actually seeing a Pigeon 'nesting' was concerned; but, partly by observation, partly by talking with the netters, farmers, sportsmen, and lumbermen, we obtained much information regarding the flight of 1888 and the larger nestings that have occurred in Michigan within the past decade, as well as many interesting details, some of which appear to be new, about the habits of the birds.

Our principal informant was Mr. S. S. Stevens of Cadillac, a veteran Pigeon netter of large experience and, as we were assured by every one whom we asked concerning him, a man of high reputation for veracity and carefulness of statement. Mr. Stevens's testimony was as follows:

Pigeons appeared that year in numbers near Cadillac, about the 20th of April. He saw fully sixty in one day scattered about in beech woods near the head of Clam Lake, and, on another occasion, about one hundred drinking at the mouth of a brook, while a flock that covered at least eight acres was observed by a friend, a perfectly reliable man, flying in a northeasterly direction. Many other smaller flocks were reported.

The last nesting in Michigan of any importance was in 1881, a few miles west of Grand Traverse. It was of only moderate size,—perhaps eight miles long. Subsequently, in 1886, Mr. Stevens found about fifty dozen pairs nesting in a swamp near Lake City. He does not doubt that similar small colonies occur every year, besides scattered pairs. In fact, he sees a few Pigeons about Cadillac every summer, and in the early autumn young birds barely able to fly are often met with singly or in small parties in the woods. Such stragglers attract little attention and no one attempts to net them, although many are shot.

The largest nesting he ever visited was in 1876 or 1877. It began near Petosky and extended northeast past Crooked Lake

for twenty-eight miles, averaging three or four miles wide. The birds arrived in two separate bodies, one directly from the south by land, the other following the east coast of Wisconsin and crossing at Manitou Island. He saw the latter body come in from the lake at about three o'clock in the afternoon. It was a compact mass of Pigeons, at least five miles long by one mile wide. The birds began building when the snow was twelve inches deep in the woods, although the fields were bare at the time. So rapidly did the colony extend its boundaries that it soon passed literally over and around the place where he was netting, although when he began, this point was several miles from the nearest nest. Nestings usually start in deciduous woods, but during their progress the Pigeons do not skip any kind of trees they encounter. The Petosky nesting extended eight miles through hard-wood timber, then crossed a river bottom wooded with arbor-vitæ, and thence stretched through white pine woods about twenty miles. For the entire distance of twenty-eight miles every tree of any size had more or less nests, and many trees were filled with them. None were lower than about fifteen feet above the ground. Pigeons are very noisy when building. They make a sound resembling the croaking of wood-frogs. Their combined clamor can be heard four or five miles away when the atmospheric conditions are favorable. Two eggs are usually laid, but many nests contain only one. Both birds incubate, the females between two o'clock P. M. and nine or ten o'clock the next morning; the males from nine or ten o'clock A. M. to two o'clock P. M. The males feed twice each day, namely, from daylight to about eight o'clock A. M., and again late in the afternoon. The females feed only during the forenoon. The change is made with great regularity as to time, all the males being on the nest by ten o'clock A. M. During the morning and evening no females are ever caught by the netters; during the forenoon no males. The sitting bird does not leave the nest until the bill of its incoming mate nearly touches its tail, the former slipping off as the latter takes its place. Thus the eggs are constantly covered, and but few are ever thrown out despite the fragile character of the nests and the swaying of the trees in high winds. The old birds never feed in or near the 'nesting,' leaving all the beech mast, etc., there for their young. Many of them go one hundred miles each day for food. Mr. Stevens is satisfied that Pigeons continue laying and hatching during the

entire summer. They do not, however, use the same nesting place a second time in one season, the entire colony always moving from twenty to one hundred miles after the appearance of each brood of young. Mr. Stevens, as well as many of the other netters, with whom we talked, believes that they breed during their absence in the South in the winter, asserting as proof of this that young birds in considerable numbers often accompany the earliest spring flights.

Pigeon netting in Michigan is conducted as follows: Each netter has three beds. At least two, and sometimes as many as ten 'strikes' are made on a single bed in one day, but the bed is often allowed to 'rest' for a day or two. Forty or fifty dozen birds are a good haul for one 'strike.' Often only ten or twelve dozen are taken. Mr. Stevens's highest 'catch' is eighty-six dozen, but once he saw one hundred and six dozen captured at a single 'strike.' If too large a number are on the bed, they will sometimes raise the net bodily and escape. Usually about one third are too quick for the net and fly out before it falls. Two kinds of beds are used, the 'mud' bed and the 'dry' bed. The former is the most killing in Michigan, but, for some unknown reason, it will not attract birds in Wisconsin. It is made of mud, kept in a moist condition and saturated with a mixture of saltpetre and anise seed. Pigeons are very fond of salt and resort to salt springs wherever they occur. The dry bed is simply a level space of ground carefully cleared of grass, weeds, etc., and baited with corn or other grain. Pigeons are peculiar, and their habits must be studied by the netter if he would be successful. When they are feeding on beech mast, they often will not touch grain of any kind, and the mast must then be used for bait. A stool bird is an essential part of the netter's outfit. It is tied on a box, and by an ingenious arrangement of cords by which it can be gently raised or lowered, is made to flap its wings at intervals. This attracts the attention of passing birds which alight on the nearest tree, or on a perch which is usually provided for that purpose. After a portion of the flock has descended to the bed, they are started up by 'raising' the stool bird, and fly back to the perch. When they fly down a second time all or nearly all the others follow or accompany them and the net is 'struck.' The usual method of killing Pigeons is to break their necks with a small pair of pinchers, the ends of which are bent so that they do not quite meet. Great care must be taken not to shed blood on the bed, for the Pigeons notice this at once and

are much alarmed by it. Young birds can be netted in wheat stubble in the autumn, but this is seldom attempted. When just able to fly, however, they are caught in enormous numbers near the 'nestings' in pens made of slats. A few dozen old Pigeons are confined in the pens as decoys, and a net is thrown over the mouth of the pen when a sufficient number of young birds have entered it. Mr. Stevens has known over four hundred dozen young Pigeons to be taken at once by this method. The first birds sent to market yield the netter about one dollar a dozen. At the height of the season the price sometimes falls as low as twelve cents a dozen. It averages about twenty-five cents.

Five weeks are consumed by a single nesting. Then the young are forced out of their nests by the old birds. Mr. Stevens has twice seen this done. One of the Pigeons, usually the male, pushes the young off the nest by force. The latter struggles and squeals precisely like a tame squab, but is finally crowded out along the branch and after further feeble resistance flutters down to the ground. Three or four days elapse before it is able to fly well. Upon leaving the nest it is often fatter and heavier than the old birds; but it quickly becomes much thinner and lighter, despite the enormous quantity of food that it consumes.

On one occasion an immense flock of young birds became bewildered in a fog while crossing Crooked Lake and descending struck the water and perished by thousands. The shore for miles was covered a foot or more deep with them. The old birds rose above the fog, and none were killed.

At least five hundred men were engaged in netting Pigeons during the great Petosky 'nesting' of 1881. Mr. Stevens thought that they may have captured on the average 20,000 birds apiece during the season. Sometimes two car loads were shipped south on the railroad each day. Nevertheless he believed that not one bird in a thousand was taken. Hawks and Owls often abound near the 'nesting.' Owls can be heard hooting there all night long. The Cooper's Hawk often catches the stool Pigeon. During the Petosky season Mr. Stevens lost twelve stool birds in this way.

There has been much dispute among writers and observers, beginning with Audubon and Wilson and extending down to the present day, as to whether the Wild Pigeon lays one or two eggs. I questioned Mr. Stevens closely on this point. He assured me

that he had frequently found two eggs or two young in the same nest, but that fully half the nests which he had examined contained only one.

Our personal experience with the Pigeon in Michigan was as follows :

During our stay at Cadillac we saw them daily, sometimes singly, usually in pairs, never more than two together. Nearly every large tract of old growth mixed woods seemed to contain at least one pair. They appeared to be settled for the season, and we were convinced that they were preparing to breed. In fact, the oviduct of a female killed May 10 contained an egg nearly ready for the shell.

At Oden we had a similar experience, although there were perhaps fewer Pigeons there than about Cadillac. On May 24 Mr. Dwight settled any possible question as to their breeding in scattered pairs by finding a nest on which he distinctly saw a bird sitting. The following day I accompanied him to this nest which was at least fifty feet above the ground, on the horizontal branch of a large hemlock, about twenty feet out from the trunk. As we approached the spot an adult male Pigeon started from a tree near that on which the nest was placed and a moment later a young bird, with stub tail and barely able to fly, fluttered feebly after it. This young Pigeon was probably the bird seen the previous day on the nest, for, on climbing to the latter, Mr. Dwight found it empty, but fouled with excrement, some of which was perfectly fresh. A thorough investigation of the surrounding woods, which were a hundred acres or more in extent, and composed chiefly of beeches with a mixture of white pines and hemlocks of the largest size, convinced us that no other Pigeons were nesting in them.

All the netters with whom we talked believe firmly that there are just as many Pigeons in the West as there ever were. They say the birds have been driven from Michigan and the adjoining States partly by persecution, and partly by the destruction of the forests, and have retreated to uninhabited regions, perhaps north of the Great Lakes in British North America. Doubtless there is some truth in this theory ; for, that the Pigeon is not, as has been asserted so often recently, on the verge of extinction, is shown by the flight which passed through Michigan in the spring of 1888. This flight, according to the testimony of many reliable observers,

was a large one, and the birds must have formed a nesting of considerable extent in some region so remote that no news of its presence reached the ears of the vigilant netters. Thus it is probable that enough Pigeons are left to re-stock the West, provided that laws, sufficiently stringent to give them fair protection, be at once enacted. The present laws of Michigan and Wisconsin are simply worse than useless, for, while they prohibit disturbing the birds *within* the nesting, they allow unlimited netting only a few miles beyond its outskirts *during the entire breeding season*. The theory is that the birds are so infinitely numerous that their ranks are not seriously thinned by catching a few million of breeding birds in a summer, and that the only danger to be guarded against is that of frightening them away by the use of guns or nets in the woods where their nests are placed. The absurdity of such reasoning is self-evident but, singularly enough, the netters, many of whom struck me as intelligent and honest men, seem really to believe in it. As they have more or less local influence, and, in addition, the powerful backing of the large game dealers in the cities, it is not likely that any really effectual laws can be passed until the last of our Passenger Pigeons are preparing to follow the Great Auk and the American Bison.

a SOME ACCOUNT OF THE BIRDS OF SOUTHERN
GREENLAND, FROM THE MSS. OF
A. HAGERUP.

EDITED BY MONTAGUE CHAMBERLAIN.

(Concluded from p. 218.)

Halieetus albicilla. GRAY SEA EAGLE.—A common resident; breeds. It is most numerous in the vicinity of Ivigtut in winter. On November 24, 1886, some ten or twelve examples were seen, and on December 18, fourteen were counted. It is probable that some migrate here from farther north, and when the weather is bad by the open sea they retire up the fjord, for on both the occasions just noted, their appearance had been preceded by heavy storms of wind accompanied by snow.

This Eagle hunts the Eider much the same as the Greenlander does. The Duck is chased and forced to dive so constantly, and to stay under water so long, that it becomes exhausted, and on remaining on the surface to recover breath and to rest, is captured. Sometimes the Eider will take to the air and then escape, for the Eagle cannot outfly it.

This Eagle also sometimes preys on the Murres.

On May 15 a clutch of eggs was obtained that had been taken from the nest about two weeks previously; they had been sat upon about one week. On June 10 another clutch was secured that had been taken about three weeks, and these were almost wholly incubated. It is probable that nests with fresh eggs can be found in April.

Falco islandus. WHITE GYRFALCON.

Falco rusticolus. GRAY GYRFALCON.—[From skins that have been sent to me by Mr. Hagerup, and which have been examined with Mr. William Brewster's assistance, it is evident that it is to the above species the birds Mr. Hagerup writes of must be referred.—M. C.]

Gyrfalcons reside during the entire year in southern Greenland and breed there, but are met with near the settlement more frequently in winter than in summer; in the latter season they are quite rare.

On June 3, 1886, Mr. Hagerup shot a female in gray plumage with a naked breeding-spot on the breast. In its stomach were feathers and claws of Ptarmigan. The length of this bird was 23 inches, Danish. On August 11 a dark-colored specimen was obtained which measured 19½ inches. One or two more in dark plumage were seen during the summer. In winter many came from the north, the first, in 1886, appearing on November 24.

In his notes Mr. Hagerup writes:—In November five were seen—all white; in December fifteen or twenty—only one of these was dark-colored; in January twelve—two were dark; in February none; in March two—white; in April four—two dark." From these and other observations Mr. Hagerup has concluded that the white form (*F. islandus*) predominates in winter and the gray form (*F. rusticolus*) in summer.

These Falcons, like the Eagle, are most frequently seen along the upper portion of the fjord after gales or snowstorms.

Mr. Hagerup writes that his Pigeons are very much afraid of these Falcons and on the approach of their dreaded enemy seek the nearest hiding place, but when there is no opportunity to hide they escape by flight, mounting into the air to a great height. It is a grand sight to watch a fierce Falcon chasing a Pigeon through mid-air. As yet, none of the Pigeons have been caught; they seem to understand just how to avoid the Falcon, but it is reported that sometimes young birds have been thus preyed upon.

Those who have watched both the Gyrfalcon and the Peregrine while chasing Pigeons consider that the latter has much the swifter flight and is the more dexterous. During these chases the Falcons often come within gun-shot, but the flight is so swift it is difficult to hit them.

At times the Falcon is followed by a Raven or two, and they swoop after each other, but this seems to be a mere matter of play.

Mr. Hagerup once saw a large Gyrfalcon in very dark plumage on the

ice eating a sea-bird. The Falcon flew to the land with his prey and soon a white-plumaged bird of this same genus came down from the mountain and appeared desirous to join in the feast, but kept at a respectful distance. When the dark bird was approached by the gunner it flew off, carrying its unfinished meal, and the white bird followed steadily on—moving as the location of the feast was moved.

The cry of these Falcons, which is often heard when two or more are in company, is reported by Mr. Hagerup as “a not loud, quivering, lengthened tune, much resembling that of *Falco tinnunculus*.”

In 1886 a nest containing three eggs was reached by a Greenlander, on a cliff near Frederickshaab. Mr. Hagerup was informed by Director Möller that this nest was placed on a perpendicular cliff, but a snow drift sloping advantageously enabled the man to reach it.

Falco peregrinus anatum. DUCK HAWK.—Mr. Hagerup has examined several skins that were said to have been taken in the vicinity of Ivigtut. Mr. Kock of Frederickshaab reports taking eleven Gyrfalcons and three Duck Hawks during the winter of 1886–87.

The only one of this species seen near Ivigtut was discovered in the act of chasing the tame Pigeons, and though all the Pigeons escaped from its claws, this Falcon proved more skilful in the art of flying and swifter on the wing than any of the Gyrfalcons that had attempted the same contest.

Nyctea nyctea. SNOWY OWL.—A rare winter visitor. In January, 1886, a nearly white specimen was obtained. He was fierce when wounded and turned to attack the gunner. None are known to have been taken in the vicinity of Ivigtut since that time.

Corvus corax principalis. AMERICAN RAVEN.—This species is a common resident. It is seen and heard daily, and not being very shy is often shot.

The greater part of its food is obtained on the fjord. When an Eagle sits upon the ice it is often attended by one or more Ravens, and these frequently give the Eagle considerable trouble while eating, as the Ravens are not easily repulsed. Occasionally a Raven is captured in a fox trap baited with dried fish or Ptarmigan, but these birds are too sly and shrewd to be caught thus very often, for even if the iron be well hidden in the snow they will rarely touch the bait, be it ever so tempting.

In July and August the old and young of a family roam together—the old birds giving warning of approaching danger; for if at that age the parents do not guard the young, these are easily captured, appearing stupid or reckless.

In flight and in general habits the Greenland bird differs considerably from the Raven that occurs in Denmark.

Mr. Hagerup has taken two nests of the present species. Both were on accessible cliffs—one near to the shore, the other at some sixty feet from sea level.

Acanthis ———? REDPOLL.—[Just what forms of this genus occur in the section of Greenland under present consideration, I have not the material at hand to decide. At the time Mr. Hagerup made the notes on which this paper is based he considered that all the examples he had me

with should be referred to *linaria*. It is, however, but fair to him to state that at that time he had not seen the latest determinations upon this much involved group.—M. C.]

Redpolls are abundant in summer, and breed in all suitable localities. In the autumn of 1886 the majority had left the vicinity of Ivigtut by September 24, but a few were seen much later. On October 26 three or four were observed, and though none appeared in November, on the fifth day of December one was about the village, and three days later some five or six were discovered on the northern side of the fjord, in some bushes close down by the shore, and were seen again in the same place on the following day. Mr. Hagerup considers that in appearance and voice these birds were exactly the same as *linaria*, and he has no reason to think they should be referred to *hornemannii*, which latter Holbøll says remains in Greenland all the year, through restricted to the high land.

The first spring arrivals in 1887 were observed on April 24, and the next comers were noted six days later; the latter were some single birds and one party of three. These were flying at an elevation of about one hundred feet, against a W. N. W. wind, and appeared to have come over the high land—from the eastward. On May 6 several appeared in the valley near Ivigtut, and by the 10th of the month these birds were quite common. The flock remained about the village several weeks before they began to build.

On June 21 a nest was found which contained young about ready for their maiden effort on the wing. On the same day another nest was found with one egg in it, and five days later five eggs more had been added, when five were then taken. The parent continued to sit upon the single egg, but when this was taken the nest was abandoned. This bird was remarkably tame, allowing an intruder to approach within arm's length, and then getting out of reach slowly and silently.

These nests, as well as others that were examined, were situated amid the willow thickets, near to running water, and were placed on the lower branches of the bushes, very close to the ground, or in a tuft of grass. They were composed exteriorly of straws,* and lined with whitish vegetable wool and a few white feathers from the Ptarmigan. They were very thick and warm.

During the latter part of June, when the willows are just in leaf, the majority of the young birds are on the wing, and they congregate near the houses and especially on the refuse heaps of the brewery, where they are easily captured. Some eight or ten were taken alive there on the first day of July, 1887. Of these Mr. Hagerup secured an adult male and two young birds, and placed them in a cage by an open window. In a few days an adult female and three young were enticed into the chamber by the prisoners, and were secured. After fourteen days confinement some of the young were given their liberty, but in a few hours they all returned. The principal food given the captives was groats softened in water.

Of the five young birds, four were dressed in brownish gray, the backs

* Probably dried grass is meant.—M. C.

speckled with the darker tint. These with the adult female moulted in July. The fifth young bird was supposed to be a male of the previous year's hatching, differing from the others by being larger and lighter in color. It also had a distinct yellow band on the wings, and the forehead was faintly tinged with yellow; the throat was black. On August 13 this bird had not yet moulted, or else had finished before its capture. In their new dress three of the young wore metallic yellow on the crown, while the crown of the fourth was of a dark reddish tint. All the four became more like the fifth—the immature bird,—their crowns stronger colored, but the black on the throat less decided. The adult female had not at that date finished moulting. She lost the red crown patch—excepting a very small portion, and this was being replaced by yellow, similar to the young. The adult male was moulting and had lost some of his yellow crown. In this bird—the adult male—the upper mandible projects between one and two millimeters, and ends with a hook. The upper mandible is blackish and the under mandible yellow.

During the breeding season these birds are gregarious, and when one utters a note of warning or alarm a dozen or more of its fellows immediately surround it and join in the alarm.

They are very noisy and restless, constantly on the alert, and continually piping or singing, caring little for an intruder, and boldly approaching within a few feet of him. Mr. Hagerup writes that he does not agree with Holböll's opinion that these birds are very wild during the breeding season; they are merely restless, as they are at all times. Mr. Hagerup also differs from Holböll's statement that the males lose the red from the breast and back during the summer, and reports having seen numerous red-breasted birds through the whole summer.

One that was shot on July 2 was highly colored with red. This specimen was not as large as the imprisoned male. About fifteen per cent of the adult (red crowned) birds have red on the breast and rump during the summer months. This red color, Mr. Hagerup considers, may possibly not appear before the bird is several years of age, or may, perhaps, indicate a different race. These questions he will endeavor to determine by further investigations.

The song of the Redpoll, which is uttered both when on the wing and while perching, is a rather mediocre performance, and becomes very monotonous.

Its food in summer consists partly of the fruit and leaf buds of the willow, and partly of insects. The œsophagus of a male shot on July 2 was filled to the throat with small flies.

These birds are not found at a greater height above sea level than 300 to 400 feet.

Plectrophenax nivalis. SNOWFLAKE.—Holböll states that this species remains in Greenland during the winter, though restricted chiefly in that season to the highlands, seldom visiting the lowlands. It does not occur in the vicinity of Ivigtut in winter, but during the summer months is quite numerous and breeds.

In 1887 the first spring arrivals were noticed on March 30, and the next comers on April 3, and five days later a flock of twenty or thirty were seen. These early birds did not remain, but passed on farther north, and the birds that built near Ivigtut did not arrive until the last days of April.

Two nests have been found by Mr. Hagerup at an elevation of some 300 feet, and one at 200 feet above sea level. One, discovered on June 26, 1886, contained very young chicks, and another, taken June 14, 1887, contained young old enough to sit on the edge of the nest. Both nests were situated amid large rocks, and being placed between one and two feet from the top of a high boulder, were hard to reach. They were very solidly built, and were lined with white feathers, probably of the Ptarmigan. Other nests have been found, and while the birds build at different elevations, from close by the margin of the water up to the highlands, the favorite location is about 1000 to 1600 feet up the hillsides.

The parent birds are not at all shy when about the nest, but are rather silent. While Mr. Hagerup was standing near one nest the female flew to it with an insect in her bill, and in another instance the parent entered a nest not ten feet away from the observer. In July the young birds gather about the houses in the village.

"The song of this species," Mr. Hagerup writes, "is euphonic and harmonious; but it is rendered in brief stanzas—there is no continuous melody." "Warbling is, perhaps, the English word that would best represent the character of the song."

In the fall of 1886 the last examples were seen on October 25. In 1887 they were common on October 13.

Calcarius lapponicus. LAPLAND LONGSPUR. — In the vicinity of Ivigtut this is the least numerous of the four species of singing birds that occur. The relative numbers are about one Longspur to five Wheatears, ten Snowflakes, and ten or fifteen Redpolls.

In 1886 the first spring comers were seen on May 24, and in 1887 on May 22. The favorite nesting site is in flat, moist ground covered with grass or low bushes. Mr. Hagerup has not seen any nests at a higher elevation than some 200 feet. In Ivigtut valley, which contains about one third of an English square mile, some six or eight pairs were breeding during the summer of 1887.

A nest discovered on June 16 was placed in deep moss in a moist spot in the valley, on the outskirts of a willow thicket, and in the vicinity of water. It was composed exteriorly of dried grass and roots, and lined with white Ptarmigan's feathers. In it were seven eggs slightly incubated. On July 3 a young bird, that could hardly fly, was captured by a dog.

This species has several alarm notes and calls of which the principal is a rather pleasing, though sad, flute-like note resembling *tloo* or *tluu*. The song, which sounds best when the bird, after mounting up in the sky, drops slowly to the earth with extended motionless wings, is not very long, but has a fine, flute-like tone, and though agreeable to the ear is rather melancholy, as all the notes of this bird are. There is no variation in the song, nor is it repeated with great frequency. It is, however, the finest heard in these wilds.

The Longspur, like all the song birds of the far north, is quite tame and fearless of man, but is less frequently seen in the immediate vicinity of the houses at Ivigtut than the other species are.

Saxicola oenanthe. WHEATEAR.—This is a common summer resident, and breeds here. In 1886 the first reached Ivigtut on April 4, and in 1887 on April 12. In the fall of 1886 the last one, a young bird, was observed on October 5, though the bulk of the flock had gone off several weeks before.

It builds in locations similar to the Snowflake, though it commonly selects a spot under 600 feet high. The situation of the nest is also similar, though the present species goes farther into the heaps of stones—sometimes as much as four feet or more. A favorite situation for the nest is the wall of a house or a stone fence. On June 21, 1886, a nest was found containing chicks about ten days old; and on July 15 another nest was found also containing very young birds. This latter was built quite close to the shore, not more than two feet from high-water mark. A nest taken June 9, 1887, contained eight eggs which had been sat upon about a week; another taken at an elevation of about 600 feet, on June 23, contained seven eggs, and several nests have been obtained from Greenlanders containing sets of six eggs. The Danish, Swedish, and German writers report that the number of eggs in a set in their countries is five to six, seldom seven. In the Faroe Islands this species is reported to lay seven or eight eggs. From these facts Mr. Hagerup infers that these birds thrive best in a low temperature, and in the extreme north lay one egg more than is the rule in Central Europe. From experience thus far in Greenland he is inclined to give the number of eggs as six or seven and occasionally eight, but he thinks it possible that the past seasons may have been peculiarly favorable for the song birds of that region, for a nest of the Redpoll was discovered with six eggs, the usual number being four or five, and a nest of Longspur's was supplied with seven eggs instead of the customary five or six.

In one particular the Wheatears of Greenland differ from those found in Denmark. The Greenland birds when near their nests utter, besides the usual notes, a loud, clear call which very much resembles the alarm note of the Snowflake. It is used by both males and females.

This species is only seen in pairs excepting occasionally when a single family is met with in one group.

Passer domesticus. EUROPEAN HOUSE SPARROW.—This species was introduced from Denmark several years ago. It has been known to hatch its young in nests built outside of the houses, but it does not thrive in this climate and the number is diminishing, five old males being all that are left of the colony, and these do not move five hundred feet from the houses. Mr. Hagerup considers that the cold has less effect upon them—is less destructive—than the severe and long-continued storms of snow and sleet.

DESCRIPTION OF THE NEST AND EGGS OF *MEGASCOPS ASIO MAXWELLII*, THE ROCKY MOUNTAIN SCREECH OWL.

BY CAPT. CHARLES E. BENDIRE.

THE CREDIT of the discovery of the nest and egg of this race, the handsomest of the genus *Megascops*, belongs, I believe, to Mr. A. W. Anthony, one of our younger and most energetic naturalists, who has done excellent work in his line, as well as in other branches of natural history, in various portions of the West, and has generously donated through the writer a number of his rarest and most interesting specimens to the National Museum collection at Washington. He writes me as follows regarding this species: "On May 4, 1883, while collecting on the Platte River, about six miles from Denver, Colorado, my attention was attracted by the hammering of a Red-shafted Flicker, and pushing my way through a very thick growth of willows and small cottonwoods, I found the bird at work on a cottonwood, where he was excavating a nesting site. The tree was a very large one; its top had been partly broken off, about twelve feet up, blown over, and some of its limbs rested on the ground. As I climbed up, via the leaning top to the *Colaptes* burrow, which was located in that part of the trunk of the tree still standing upright, a Rocky Mountain Screech Owl flew out from a knot hole not before noticed and dashed almost in my face, lit on a tree within six feet of me, and after staring at me in amazement for a few minutes, dropped down and out of sight in the dense undergrowth in the neighborhood. The two burrows were about four feet apart, nearly on a level with each other, but on opposite sides of the tree." The Owl's nest was in an old knot hole about fifteen inches in length and judging from a rough sketch sent me by Mr. Anthony at the time, the base of the nest was almost on a level with the entrance. It contained three young about a week old and an addled egg. This egg was not found until his return to the nest a second time a few hours afterwards, when one of the parents was caught and a careful examination of the nest made. This, if it can be called a nest, was composed of bits of dry rotten wood, a few feathers of small birds, and a good many fish scales. The tree was standing within a hundred yards of the river. Fish of various species

seem to form no inconsiderable portion of the diet of other small Owls as well, as I have personally found on more than one occasion good-sized brook trout (*Salmo purpuratus*) in the burrows used by the Kennicott's Screech Owl (*Megascops asio kenicottii*) in Washington Territory. Just how they manage to catch an active fish like a brook trout if they take them alive, which in my opinion I must confess is very questionable, would be interesting to know.* Mr. Anthony thinks that the Rocky Mountain Screech Owl breeds also in old abandoned nests of the Black-billed Magpie (*Pica pica hudsonica*), and he writes me that he has often found them roosting in them both in winter and spring, and has found the American Long-eared Owl (*Asio wilsonianus*) breeding in such nests.

Mr. Denis Gale of Gold Hill, Colorado, has taken several nests of this bird during the last three years, and finds them not at all uncommon in his vicinity. A set of four eggs, now before me, was found by him on April 20, 1886, on Boulder Creek, near Boulder City, Colorado. He writes me regarding these eggs as follows: "Judging from the different stages of advancement in the embryos, I am inclined to think that they were laid at intervals of from forty-eight to seventy-two hours and the eggs were covered continuously from the time the first one was laid. The burrow used for a nesting site by this pair of birds was an old Flicker's hole, in a cottonwood tree, about twenty feet from the ground. There was nothing between the eggs and the bare wood bottom on which they lay that bore the semblance of a nest, excepting a little wood dust and a few wing and tail feathers of the Arctic Bluebird and several species of Sparrows. These feathers were without doubt the remnants of birds fed to the sitting female by her mate, the soiled and stained eggs showing plainly their coming in contact with the mangled food, devoured over them." The female covered her eggs with great persistency and was only removed off them by force, snapping her bill and using her sharp claws with great energy when handled. Mr. Gale tells me that besides small birds, several species of the smaller rodents, frogs, and crawfish also form part of their bill of fare.

* Since this article has been written, I notice that this fishing propensity is not confined to the two races mentioned therein, but is common to the Eastern form as well. See M. A. Frazar in Bull. Nutt. Ornith. Club, Vol. II, No. 3, July, 1877, p. 80, and Willard E. Treat in 'The Auk,' Vol. VI, No. 2, April, 1889, p. 189.

Mr. Gale writes further as follows: "Rarely does this species follow the creeks far into the foot-hills; I have not observed them at 6000 ft. altitude. Like others of their genus, they seem to delight in a sheltered, shady location, close to a pond or creek, where they select a domicile, either in a natural tree hole or in a Flicker's old nest site. If for any reason the Flicker wishes to retain his previous year's nest site, and Scops is in possession, strife is carried on between them with great address, ending as often in favor of one as the other, judging from the broken eggs upon the ground ejected by the victor. The Flicker dares not enter, to turn Scops out, but if the premises are vacated for ever so short a time, he enters, and holds them against all comers; his formidable bill pointing out at the door is sufficient apology for leaving him in quiet possession.

"About the middle of April is the usual period for the eggs, which are from three to five in number. The nest is usually a sparse gathering of wing and tail feathers of small birds; in some instances no litter of any kind is present; as a rule the first two or three eggs are laid on consecutive days, with intervals of two, three or more days between the third, and last one, or two, as the case may be. The female is always in charge, and at no time leaves the nest while sitting, or while her brood is very young; she is waited upon, and fed by the male, who, being a skilful hunter, provides liberally for her wants. Searching for nests, I have sometimes discovered the male hidden in a tolerably well stocked larder, in close proximity to the nest site. In one cache were portions of a Bluebird, a mouse, and a frog; in another a Junco, a tree Sparrow, and a minnow three and a half inches long; claws and legs of crawfish were also present. In a few cases I have discovered the male sitting upon a bough close to the stem of a cottonwood tree, perfectly motionless, with eyes almost closed as if asleep, the pupil of the eye closed to the merest slit, but with ears erect, and all alive to the danger threatening his sitting mate close by; in this well selected position, his color and markings so nearly resembling the rough, corrugated bark of the tree, he seemed to have the fullest assurance of security against observation.

"The female is a close sitter; to induce her to leave her nest is a difficult matter, unless she has been frequently disturbed and understands what is meant when she hears the tree grappled in

climbing it; she will then fly out. Otherwise you have to take her off her eggs. In some instances she will feign dead, and lie on her back in your open palm with her eyes shut; immediately you throw her off, however, she will right herself on wing, and gaining a bough upon a neighboring tree, will crouch forward, bending her ear-tufts back, and look very spiteful and wicked. At other times when removed from her eggs she will snap her bill, moan slightly, and show fight. Both male and female indulge in the screech which differs but little from that of their Eastern cousins; its sharp distressing notes can be heard of a still night, a mile distant.

"The lately hatched young are clothed in beautiful white down. In the latter part of June before they are well able to fly, they may be seen sitting side by side, perfectly motionless, upon a limb close by the nest-site. The young and their parents as well seem to desert their holes and live among the trees for the balance of the summer; but against the cold winds that strip the leaves off the trees in the fall, suitable tree holes are selected for their winter quarters."

While stationed at Fort Custer, Montana, during the winter of 1884-85, I took five of these birds, but was unable to find their nests. I discovered their presence there quite accidentally. On Dec. 1, 1884, while out hunting Sharptail Grouse (*Pediocætes phasianellus campestris*) in a bend of the Bighorn River, a few miles south of the Post, as I was walking by a thick clump of willows I indistinctly noticed a whitish-looking object dropping on the ground, apparently out of the densest portion of the thicket and on the opposite side from where I was standing at the time, and simultaneously heard several plaintive squeaks from that direction. Carefully skirting around the thicket, which was some twenty yards long and perhaps five wide, I saw the object of my search savagely engaged in killing a meadow mouse which it had just captured. I promptly shot it. It proved to be a female and excessively fat, in fact all the specimens I secured subsequently, showed conclusively that they managed to secure an abundance of food in that Arctic winter climate, and that a portion of this at least, seems to be obtained in the daytime. The four other specimens collected by me were all obtained in similar locations. I have no doubt that it breeds in the vicinity of Fort Custer, but I lost all trace of these birds in the spring months and failed to hear

their love notes at that time. It is possible that they retire a little nearer to the mountains to breed. This is, up to date, the most northerly locality recorded at which the Rocky Mountain Screech Owl has been obtained.

Their eggs are pure white in color with little gloss; in shape they are elliptical oval, in fact decidedly more elongated than the eggs of the other races of *Megascops*, which are almost invariably perfectly oval in shape, and some almost spherical. The usual number laid to a set seems to be four. The first specimen, No. 22,450 National Museum collection, measures 1.48×1.16 inches. The set from Boulder Co., Colorado, collected by Mr. Gale, No. 22,931 National Museum collection, measures 1.60×1.18 , 1.57×1.16 , 1.49×1.17 , 1.46×1.17 inches. Thirty-eight eggs taken by Mr. Gale average $\times 1.44$ 1.18 inches. These eggs were in ten sets; three sets consisted of three eggs each, six of four, and one of five.



NOTES ON BIRDS OBSERVED IN THE VICINITY OF ENGLEWOOD, NEW JERSEY.

BY FRANK M. CHAPMAN.

UNDER this title it is my object to present certain observations which seem worthy of record, and, for the sake of completeness, to include several notes which have before appeared in the pages of this journal. To the gentlemen, below mentioned, who have assisted me I desire to express my sincere thanks.

1. *Anas penelope*. WIDGEON. — This accidental visitor from the Old World was killed by Mr. Cornelius Demarest in the spring of 1880 or 1881; the specimen I have not seen, but Mr. Demarest's great familiarity with the Ducks which occur here, acquired during many years of experience, his identification of the bird at the time of capture, his accurate description of it now, and the fact of its being killed from a flock of three American Widgeon (*Anas americana*), all combine to render this record worthy of entire acceptance.

2. *Ectopistes migratorius*. PASSENGER PIGEON. — During the twelve years in which I have hunted in this locality I have found but two birds of this species, killed in September, 1878.

3. *Strix pratricola*. AMERICAN BARN OWL.—In 'The Auk' for October, 1886, p. 485, I recorded the occurrence at Englewood of a Barn Owl observed on August 26 of that year, its identity being made known by several feathers found beneath the tree from which it was startled. Since that date the ground in the vicinity has been the subject of more or less expectant observations, but not until August 19, 1888, were they attended by success. Then, as before, the ground and foliage beneath the same tree were found well sprinkled with droppings, and search revealed three unmistakable Barn Owl feathers, one a secondary. On this occasion the hour was much later—midday—and no bird was seen, but the unsoiled condition of the feathers and the fact that some of the droppings were on the upturned *under* side of a leaf from a recently broken but still unwithered weed, showed that the bird had only recently departed. Frequent returns were made to this spot and although it was evident that for a few days the bird still lingered in the vicinity my best efforts to find him at home resulted only in failure, and a seductively baited trap met with no better success.

4. *Ceophloeus pileatus*. PILEATED WOODPECKER.—I have in my collection a male of this species taken in September, 1885, by Mr. Jacob Ullrich on the Palisades at Englewood.

5. *Scolecophagus carolinus*. RUSTY BLACKBIRD.—Three individuals were shot from a small flock of five or six, December 24, 1884, the only occasion on which I have observed this species here during the winter.

6. *Chondestes grammacus*. LARK FINCH.—The capture of a male of this species was recorded in 'The Auk' for January, 1886, p. 136.

7. *Ammodramus maritimus*. SEA-SIDE FINCH.

8. *Ammodramus caudacutus*. SHARP-TAILED FINCH.—On the west shore of the Hudson River, some twenty-five miles from its mouth, at Piermont, N. Y., there is a large tract of salt meadow several hundred acres in extent. Acting on a suggestion from Dr. A. K. Fisher, who predicted the occurrence of both the above-mentioned birds there, the locality was visited July 2, 1887, and the prediction fully verified, both species being found abundant and evidently breeding. Later, September 24 of the same year, young in first plumage were secured. While we may not unnaturally expect these maritime birds to follow up large tidal streams, the present locality is, so far as I am aware, the only one in the Hudson River Valley in which they are known to breed, although there are other marshes in every way as favorable for their occupation.

9. *Spizella pusilla*. FIELD SPARROW.—Two males of this species were taken December 25, 1885, the latest date at which I have observed them.

10. *Tachycineta bicolor*. WHITE-BELLIED SWALLOW.—The following record given me by Mr. Richard Demarest of Englewood, I can fully vouch for. On December 31, 1882, "an unusually warm day for the season" Mr. Demarest found a flock containing "thousands of Swallows"; many were in the air and others were perched on the bayberry bushes which abound in the locality. So abundant were these perching birds that in two shots Mr. Demarest killed thirteen and these he took to the village to prove

a statement he quite naturally supposed would be disbelieved. While I did not see these birds, Mr. Demarest's description and the fact that they were found alighting on bayberry bushes, on the fruit of which they were probably feeding, leaves no doubt as to their identity.

11. *Lanius ludovicianus*. **LOGGERHEAD SHRIKE**.—August 24, 1888, a male of the year of this species was taken at Tappan on the New York-New Jersey State line. Mr. C. K. Averill records the capture of an immature bird of this species at Bridgeport, Connecticut, August 29,* 1888, and Mr. Dutcher a second from Suffolk Co., L. I., August 28, 1888.† These three captures of young birds at different localities so near the same date in connection with previous records would suggest migration of this species from the north during the latter part of August.

12. *Helminthophila leucobronchialis*. **BREWSTER'S WARBLER**.—The capture of three specimens of this puzzling hybrid has been before recorded.‡

13. *Helminthophila ruficapilla*. **NASHVILLE WARBLER**.—In a paper read before the Linnæan Society of New York, December 7, 1888, I presented the following record: §

"The circumstances attending the capture of a female Nashville Warbler on June 16, 1887, strongly indicate that the bird was breeding here; the sharp *chip* and anxious appearance of the bird, the shrivelled skin and absence of feathers on the abdomen and lower breast, I considered excellent evidence that there was a nest somewhere in the vicinity, which, however, careful search failed to reveal. Mr. J. A. Allen, to whom I showed the specimen in the flesh agreed with me that in all probability it was a breeding bird."

14. *Geothlypis formosa*. **KENTUCKY WARBLER**.—In the paper above referred to I also recorded the Kentucky Warbler as a rather rare but regular summer resident on the Palisades at Englewood, a single nest containing five nearly grown young having been found June 16, 1886.¶

15. *Mimus polyglottos*. **MOCKINGBIRD**.—I take from my note-book the following record concerning the breeding of Mockingbirds at Tenafly, N. J., three miles north of Englewood. These notes were given me by Mr. Martin, an old resident of the locality, and are corroborated by Mr. J. F. Paulison on whose lawn the birds were found nesting. After learning of their occurrence I visited the place on a number of occasions in what proved to be a vain hope of seeing these birds, but so far as known they did not return after the year 1885. Mr. Martin's story as I received it from him January 3, 1886, is substantially as follows: Ten or twelve years ago a pair of Mockingbirds appeared on Mr. Paulison's lawn, but a short distance from Mr. Martin's home; he watched their movements and discovered their nest, placed in an evergreen about ten feet from the ground.

* Auk, VI, Jan., 1889, p. 74.

† Ibid, April, 1889, p. 138.

‡ Auk, IV, 1887, p. 348.

§ See also Auk, VI, April, 1889, p. 198.

¶ See also Auk, VI, April, 1889, p. 198.

When three eggs had been laid the female was killed, a few feathers found near the nest suggesting a cat as the probable murderer. The male, however, remained in the vicinity for several weeks, singing at times continuously for an hour or more; but apparently becoming discouraged at the non-appearance of his mate, he finally disappeared. Not another bird of this species was observed until May, 1884, when a pair was seen in the same garden and observed constructing a nest in a rose bush. Here they were undisturbed until their young, four in number, were nearly ready to leave the nest; these young were then taken and successfully raised in confinement. April 17, 1885, a Mockingbird, presumably the male, was seen in the same locality; later its mate appeared. The male was frequently heard singing, and although the nest was not found, young birds were seen, and there is little doubt that this time they succeeded in raising their brood. So far as I have been able to ascertain the birds have not been observed in the locality since this last-mentioned occurrence.

16. *Harporhynchus rufus*. BROWN THRASHER.—An individual of the species was taken January 31, 1885.

17. *Thryothorus ludovicianus*. CAROLINA WREN.—A bird of this species was observed by me September 20, 1885, in a low wet wood, and presumably the same individual was frequently seen or heard in the same locality until November 20, when an examination showed it to be a male of the year. I have also records of single birds observed on April 24, 1886, and September 22 of the same year.

18. *Parus bicolor*. TUFTED TITMOUSE.—August 19, 1888, I secured a male of the year of this species. On at least two previous occasions I have seen or heard single individuals in the same wood in which the one above recorded was captured.

19. *Polioptila cærulea*. BLUE-GRAY GNATCATCHER.—Mr. John G. Bell, the well known naturalist-taxidermist, informed me during a recent visit I had the pleasure of making him that he had taken an individual of this species near his home at Piermont, N. Y., in March—the year he could not remember.

NOTES ON THE BLUE-WINGED WARBLER AND ITS ALLIES (*HELMINTHOPHILA PINUS*, *H.* *LEUCOBONCHIALIS*, *H. LAWRENCEI*, AND *H. CHRYSOPTERA*) IN CONNEC- TICUT.

BY EDWIN H. EAMES.

I TAKE pleasure in recording my experience with a few of the *Helminthophila* in southern Connecticut during the season of 1889, inasmuch as their matrimonial affairs have become in-

tricately involved and highly perplexing. The geographical seat of the trouble seems to be centred in the small State of Connecticut and the country adjoining on the north and west.

Our little favorite *Helminthophila pinus* is probably as abundant in the southern part of this State, and in the river valleys northward to Massachusetts, as in any other part of its range, it extending its way still further north to a point as yet but poorly defined.

Of *H. chrysoptera* but little can be said, as it is properly considered a rather rare bird here, and our yearly records are but few, usually less than half a dozen.

The beautiful *H. leucobronchialis* is much (?) more common than the latter, and is eagerly sought after by most of our collectors, latterly with good success, considering its former (supposed) rarity. The section of country above accorded to *pinus* seems to be the metropolis of this species, or else we have here more enthusiastic collectors. The same is also true of *H. lawrencei*. My observations last year served to acquaint me with its traits of character and style of song, so that on the 6th of May I was prepared to recognize the song of *leucobronchialis*, when I heard it. It was a typical bird, and was first heard and then seen in an apple tree whose branches almost touched a house. It was so tame at first that I could almost catch it in a hand net, and although it was several times disturbed, showed no desire to feed in other than apple trees.

My earliest record of *H. pinus* was made on the following day, but on the 9th they were surprisingly common, as at one time (midday) I distinctly heard seven singing at one time, and could see five by merely turning around. During a walk of a few hours that day I counted 60, which was considerably short of the actual number seen. Judging from a few I shot and from others I critically examined, and from their songs, they were all males, the first female not appearing until the second day following. I have never before seen as many in the same length of time, but for years have considered them common, even fifteen miles north of Bridgeport.

The only *H. chrysoptera* I have seen this season was a male I killed on May 14, in full song; I killed also a male *H. leucobronchialis* on the same morning, also in full song. One bright male *H. lawrencei* found its way into my collection, May 16, after

favoring me with its song and a little of its shyness for an hour or two. This bird was in a small but dense swamp, and kept among the higher branches in the centre, with occasional forays to the edge.

May 17 I badly wounded a third *leucobronchialis*, which was not secured, although I closely marked where it fell. It was well marked with yellow on the fore-breast and a paler wash elsewhere except on the lower throat which was pure white; otherwise it was typical.

May 21 I saw another *leucobronchialis* which was beyond my reach, being under the immediate protection of a guardian of the City water works. Having obtained his permission to shoot it, the following morning it fell a prey to my desires, and proved to be a very handsome specimen of this form. Not until June 11 did I take another, which proved to much resemble *pinus*.

Mr. C. K. Averill, Jr., of this city, found a *leucobronchialis* early in June, he being attracted to it by its song. Two days later he failed to find it. June 24 I accompanied him to the place and we soon had the pleasure of watching the bird at shorter range than I think has fallen to the lot of others, *i. e.*, three to ten feet, for so long a time that our patience gave out with the daylight. Previous to this it was necessary to watch his actions at a greater distance, as he (for it proved a male) was feeding young, how many we never ascertained, probably but one.

It came to the same conspicuous clump of bushes and briars many times, with from one to five minutes intermission, each time with one or more small green worms, about three quarters of an inch long, first reconnoitring, then cautiously approaching, and again hastily leaving a part of this clump of bushes not over two feet in extent. We failed to discover the identity of the object of its cares, but I have reason to believe it was a young Cowbird. The rest of this brood was being fed by the only *H. pinus* (a female) to be found in the neighborhood. These young were, I thought, a little too demonstrative when parental attention was bestowed upon them. At this date they could fly well, and gleaned much food for themselves. They showed a marked general similarity to the young of *pinus*. I shot this male *leucobronchialis* August 8 and also one of the young, carefully observing that the others were similar to the one killed, which was altogether too familiar with the adult bird to allow a possibility of doubt concerning its male parent.

In this, as in many other species of our smaller birds, such an affection is shown for the haunts occupied during the nesting period that they rarely leave them until after moulting, or even till the commencement of the fall migration. In the above case I never failed to find the birds within the bounds of a two-acre tract of land.

Some of the characteristics of these species and varieties may be of interest, and I will confine myself to the past two years' observations in Bridgeport and Seymour.

On their arrival, which occurs in the second week of May, they (*lawrencei*?) show a great fondness for orchards, chiefly apple, feeding among the blossoms in a manner so leisurely as to be very unlike that of other Warblers, being expressive of a serene content. In numberless instances I have known single birds to remain in one tree upwards of an hour, and then seem to regret leaving it for another.

From the 15th to the 20th of May they become settled for the season in well-defined haunts, which may be broadly said to be adjoining woods in a clearing on which is much 'scrub,' or perhaps a three to five years' growth of 'sprouts,' with some grass, briers, etc. This frequently, but not always, adjoins swampy ground. They are rarely to be found in deep woods, except on the edge, where they spend much time among the higher branches.

When the nest of *H. pinus* contains eggs, it is difficult to find, as the male ranges over quite an area. The nest is as conspicuous and bulky as a Maryland Yellow-throat's. It is variously situated — in the edge of a thicket, at the foot of a brier, etc., or quite as often in a clump of golden-rod (*Solidago*). I have seen one nest, with young, placed on a bog in the edge of swampy woods. This bog was surrounded by eight inches of water.

Normally the nest rests but lightly on the ground, and measuring about four and a half inches deep externally, depends largely on surrounding grasses for concealment, fallen leaves being inconspicuous about it. The full complement of four or five eggs has generally been completed by June 1, and I have seen young ready to leave the nest by June 10.

I have been strongly impressed with the necessity of learning the songs of these birds, inasmuch as a large share of my success hangs on this very point. In all, the *z* sound is a strong feature and very characteristic.

The song of *H. chrysoptera* consists normally of four notes—*shree-e-e*, *zwee*, *zwee*, *zwee*,—the first, about two notes higher than the following three, being slightly prolonged. It is varied somewhat at times, with the second note like the first; again it is reduced to three, two, or even a single note. The song will immediately attract attention from its very oddity. By some it is considered harsh, but to me it has a soft penetrating quality unexcelled, this effect being heightened by the uncertain source of the song.

Seven birds, typical of *H. leucobronchialis*, expressed their good spirits by precisely the song of the preceding (*H. chrysoptera*) except in one trifling point. Another, with a bright yellow breast-patch, had, in addition, a few original variations of its own. Still another, with a close resemblance to *H. pinus*, repeated songs of *H. chrysoptera* only, but they were all harsh and disagreeable in comparison. This bird was shot almost within a stone's throw of the supposed nesting site of *H. leucobronchialis* spoken of in 'The Auk' (Vol. V, pp. 427-428). A perfectly typical bird repeated but one style of song. This surprised me greatly, it being precisely the same as the common song of *H. pinus*. I heard this many times on two different occasions before shooting the bird, and it was always the same. But one more bird, with a faint greenish yellow color on the back, a strong patch of yellow on the breast, and a wash elsewhere on the under parts, used the latter song exclusively.

The only *H. lawrencei* I ever knowingly listened to, as before mentioned, favored me with its song for nearly two hours, and during the several hundred repetitions, it never varied in the least particular from the characteristic song of *H. pinus*, its song consisting of two drawling notes, *see-e-e-e*, *zwee-e-e-e*, with a very decided *z* sound. The first series is somewhat higher pitched than the last and hardly as long continued. To this, in *H. pinus* only, is sometimes added a third note of about the same length as the first, and very similar. Occasionally the first note only is uttered. When there are three, the second is sharply and quickly given. Another song quite often heard is strikingly similar to that of the Nashville Warbler, but still retains enough of its own peculiar sound to make identification positive in every case. Of several other songs, none of which are commonly heard, one is best represented by *swée-e-e*, *kik*, *kik*, *kik*, *kik*.

The following were characteristic of certain birds only and noted to be the same on several different occasions. One bird regularly repeated the trill of the Chipping Sparrow after its own, with no variations unless slightly shortened. Two others were often heard to repeat a song reminding me strongly of one of the Parula Warbler's, but they repeated their own much more frequently than this.

During the height of the season *H. pinus* may be heard repeating its song with great regularity from four to five times per minute, by the hour, with scarcely a break. This is to be noticed during the extreme heat of midday just the same as at other times, its search for insects being at the same time uninterrupted. I have quite often heard them during hard showers, not an occasional repetition merely, but with a persistent regularity. This applies to *H. leucobronchialis*, and presumably to *H. chrysoptera* as well, except that in the two latter only two or three repetitions per minute is the rule. Nearly two entire songs of the latter *can* be rendered in the time occupied by *H. pinus* for one. In many of these birds there is a tendency to extreme shyness upon the slightest attempt at familiarity, and often without any provocation, as I have many times been made aware. On many occasions my best endeavors have been unequal to the task of closely scrutinizing the author of any of these songs unless I had the patience to watch him from one to three hours, and even then a field glass would be necessary to see him clearly.

Even *H. pinus* may be called rare by those who possess excellent eyesight, provided they have ears poorly trained, and I will venture the assertion that nine out of every ten birds will escape them. I have more than once seen proof of this in those who were desirous of becoming well acquainted with the species.

LIST OF THE BIRDS OF FULTON COUNTY, KENTUCKY.

BY L. OTLEY PINDAR.

FULTON COUNTY lies in the extreme southwestern corner of Kentucky. Nearly all the notes from which this list is composed

were made at Hickman, on the Mississippi River. The other localities mentioned are situated as follows: Alexander Station (also known as Crutchfield and Slapout) is in the northwestern part of Fulton County on the Illinois Central Railroad. Woodland Mills is in Obion County, Tennessee, about a mile from the State line, on the Nashville, Chattanooga and St. Louis Railroad. Reelfoot Lake lies between Obion and Lake Counties, Tennessee, a small portion of the lake extending into Fulton County. Number 8 Chute lies between Island Number 8 and Kentucky, ten miles west from Hickman. The country is well wooded in all portions with which I am familiar, some of the more important trees being ash, beech, black gum, butternut, cottonwood, cypress, elm, hackberry, hickory (several varieties), Kentucky coffee tree, locust, red and white oaks, pecan, persimmon, poplar (tulip), sassafras, sweet gum, and walnut.

I have prepared two lists of Fulton County birds before this. One was published in the 'Ornithologist and Oölogist' for April and June, 1887, the other was read before the fifth meeting of the American Ornithologist's Union in Boston, October, 1887. Both of these lists contained several errors, all of which, it is believed, are eliminated from the present one, which also comprises a number of additional species. For much valuable help in the study of the avifauna of this region I am indebted to Mr. R. Ridgway of Washington, D. C., Mr. O. Widmann of St. Louis, Mo., Prof. B. C. Caldwell, formerly of Hickman, now of Glasgow, Mo., and also to those whose names appear later on in the list, to all of whom I take this opportunity of rendering my thanks.

1. *Podilymbus podiceps*.—Common in winter. A few remain through the summer.
2. *Urinator imber*. WAR-LOON. WALLOON.—Said to occur regularly every winter. I have never seen it.
3. *Larus argentatus smithsonianus*.—Common winter visitant.
4. *Larus delawarensis*.—Winter visitant. Not common.
5. *Larus atricilla*.—Summer would be the time to expect to see this bird, but the only one I have positively identified was seen January 8, 1887.
6. *Larus franklinii*.—Occasionally seen in winter.
7. *Gelochelidon nilotica*.—Summer resident. Not common.
8. *Sterna forsteri*.—Summer resident. The commonest of our 'Sea Swallows.'
9. *Sterna hirundo*.—Rare summer resident.

10. *Anhinga anhinga*.—Abundant in spring and fall; common in summer; a few winter.

11. *Pelecanus erythrorhynchos*.—Not rare during the migrating season. A few are said to remain all winter on a small lake in Missouri, just across the river from Hickman.

12. *Merganser americanus*.—Winter visitant. Not common.

13. *Merganser serrator*. FISH DUCK. JACK.—Common winter visitant.

14. *Lophodytes cucullatus*.—Rare resident.

15. *Anas boschas*.—Abundant winter visitant. Occasionally one or two may be found during the summer.

16. *Anas obscura*. BLACK JACK.—Winter visitant. Not very common.

17. *Anas carolinensis*.—Common winter visitant.

18. *Anas discors*.

19. *Dafla acuta*.—These two Ducks are common throughout most of the winter, but do not remain in the coldest weather.

20. *Aix sponsa*.—Common resident.

21. *Aythya americana*.—Mr. A. J. Taylor has seen two that were killed on Reelfoot Lake, Tenn.

22. *Aythya vallisneria*.—Rare winter visitant.

23. *Aythya marila nearctica*.—Common transient.

24. *Charitonetta albeola*.—Rare winter visitant.

25. *Branta canadensis*.—Common winter visitant. A few breed. See 'Auk' Vol. III, p. 481.

26. Olor ———?— I saw two Swans in November or December, 1885, but could not determine the species.

27. *Tantalus loculator*. GOURDHEAD.—Common summer visitant. I do not think it breeds. See 'Ornithologist and Oölogist,' Vol. XII, p. 166.

28. *Botaurus lentiginosus*.—I have good authority for its occurrence in winter but have never detected it personally.

29. *Ardea herodias*.—Quite a common summer resident.

30. *Ardea egretta*.—In the fall of 1885 I was shown the long tail-feathers of one said to have been killed near Hickman.

31. *Ardea candidissima*.—Summer resident, growing commoner every year.

32. *Ardea virescens*.—Rare. A dead one seen September 1, 1887.

33. *Grus americana*.—Very rare. One seen August 26, 1886.

34. *Fulica americana*. MOTHER CAREY'S CHICKEN. CHICKEN-FOOTED DUCK.—Common resident.

35. *Phalaropus tricolor*.—Common migrant.

36. *Philohela minor*.—Very rare. One seen near Alexander Station, March 15, 1888.

37. *Gallinago delicata*.—Rare migrant. In 1886 I saw it as early as August 2.

38. *Tringa maculata*.—Common migrant.

39. *Symphemia semipalmata*.—I saw two, and a man with me killed one, on No. 8 Chute, November 17, 1887.

40. *Actitis macularia*.—Common migrant.
41. *Ægialitis vocifera*.—Common resident.
42. *Colinus virginianus*.—Common resident.
43. *Meleagris gallopavo*.—Common resident. A set of ten fresh eggs was brought to me April 30, 1887.
44. *Ectopistes migratorius*.—Migrant; growing rarer yearly.
45. *Zenaidura macroura*.—Common resident.
46. *Cathartes aura*.—Common resident.
47. *Catharista atrata*.—Rare and irregular. Occurs at any time of the year.
48. *Elanoides forficatus*.—I saw eight or ten near Woodland Mills, Tenn., August 9, 1886.
49. *Ictinia mississippiensis*.—Several seen near Hickman and in Obion Co., Tenn., in August, 1886.
50. *Circus hudsonius*.—Migrant. Not common.
51. *Accipiter velox*.—Common resident.
52. *Accipiter cooperi*.—Common resident.
53. *Accipiter atricapillus*.—Very rare. Occasionally one strays into our limits during the winter.
54. *Buteo borealis*.—Common resident.
55. *Buteo lineatus*.—A rare migrant.
56. *Buteo swainsoni*.—Rare resident.
57. *Haliaeetus leucocephalus*.—Rare resident.
58. *Falco columbarius*.—Rare winter visitant.
59. *Falco sparverius*.—Common resident.
60. *Strix pratincola*.—Said, by Prof. B. C. Caldwell, to occur. I have never seen it.
61. *Asio accipitrinus*.—Very rare winter visitant.
62. *Syrnium nebulosum*.—Common resident.
63. *Megascops asio*.—Common resident.
64. *Bubo virginianus*.—Resident. Not uncommon.
65. *Conurus carolinensis*.—Formerly very common according to all reports, and stragglers are said to have occurred up to 1878.
66. *Coccyzus americanus*.—Common summer resident.
67. *Coccyzus erythrophthalmus*.—Very rare. One killed July 16, 1886.
68. *Ceryle alcyon*.—Common summer resident. A few winter.
69. *Campephilus principalis*.—Said to have been common formerly. Mr. A. J. Taylor saw several five or six years ago.
70. *Dryobates villosus*.—Rare resident.
71. *Dryobates pubescens*.—Common resident.
72. *Dryobates borealis*.—A very rare straggler.
73. *Sphyrapicus varius*.—A not uncommon resident.
74. *Ceophloeus pileatus*.—WOODCOCK. COCK-OF-THE-WOODS. BETTY-BIRD.—Resident. Not rare.
75. *Melanerpes erythrocephalus*.—Common except in the depth of winter when they all leave for three or four weeks,

76. *Melanerpes carolinus*.—Common resident.
77. *Colaptes auratus*.—Common resident.
78. *Antrostomus vociferus*.—Very rare. I saw one fly across the State line road, from Kentucky to Tennessee, Oct. 7, 1887.
79. *Chordeiles virginianus*.—Common transient.
80. *Chætura pelagica*.—Common summer resident.
81. *Trochilus colubris*.—Common summer resident.
82. *Tyrannus tyrannus*.—Common summer resident.
83. *Myiarchus crinitus*.—Summer resident. Growing more common every summer.
84. *Sayornis phœbe*.—Common summer resident.
85. *Contopus borealis*.—Rare migrant.
86. *Contopus virens*.—Common migrant. A few remain through the summer.
87. *Empidonax flaviventris*.—An uncommon migrant.
88. *Empidonax acadicus*.—Summer resident. Not very common.
89. *Empidonax pusillus traillii*.—A common migrant and rare summer resident.
90. *Empidonax minimus*.—Rare migrant. I do not think it remains through the summer although I saw it as late as May 20, in 1887.
91. *Cyanocitta cristata*.—Common resident.
92. *Corvus corax sinuatus*.—Very rare. One seen Oct. 3, 1887.
93. *Corvus americanus*.—Common resident.
94. *Molothrus ater*.—Said by several persons to have been common eight or ten years ago.—Cannot be found now.
95. *Agelaius phœniceus*.—Common resident. Especially abundant during migrations.
96. *Sturnella magna*.—Common resident.
97. *Icterus spurius*.—Rare migrant.
98. *Icterus galbula*.—Common summer resident.
99. *Scolecophagus carolinus*.—Common winter visitant.
100. *Quiscalus quiscula*.—Resident. Common, especially in winter.
101. *Quiscalus quiscula æneus*.—Resident. Our commonest Black bird. Abundant during the winter. Both this subspecies and the last breed here, *æneus* far outnumbering *quiscula*. They never breed together, each keeping strictly to itself in the breeding season.
102. *Coccothraustes vespertina*.—Quite common in March, 1887. See 'Auk,' Vol. IV, p. 257.
103. *Pinicola enucleator*.—Seen in February and March, 1888. See 'Auk,' Vol. V, p. 321.
104. *Carpodacus purpureus*.—Migrant. Not common.
105. *Acanthis linaria*.—Common in the coldest weather every winter since I began taking notes in 1885.
106. *Spinus tristis*.—Common resident.
107. *Spinus pinus*.—Common winter visitant.
108. *Poocætes gramineus*.—Common migrant.
109. *Chondestes grammacus*.—Summer resident. Not common.
110. *Zonotrichia leucophrys*.—An uncommon winter visitant.

111. *Zonotrichia albicollis*.—Common winter visitant.
112. *Spizella monticola*.—Winter visitant. Not common.
113. *Spizella socialis*.—Common during the summer. Usually a few remain all winter in sheltered spots.
114. *Spizella pusilla*.—Common resident.
115. *Junco hyemalis*.—Common winter visitant.
116. *Melospiza fasciata*.—Common in winter.
117. *Passerella iliaca*.—Common winter visitant.
118. *Pipilo erythrophthalmus*.—Common in winter. A few remain through the summer.
119. *Cardinalis cardinalis*.—Common resident.
120. *Habia ludovicana*.—Migrant. Not common.
121. *Guiraca caerulea*.—Very rare summer visitant.
122. *Passerina cyanea*.—Common summer resident.
123. *Spiza americana*.—Very rare migrant.
124. *Piranga erythromelas*.—Very rare. I have seen three males, one in June, 1884, one August 7, 1887, and one August 13, 1888. I killed a female October 2, 1888.
125. *Piranga rubra*.—Common summer resident.
126. *Progne subis*.—Common summer resident.
127. *Petrochelidon lunifrons*.—Rare summer resident.
128. *Chelidon erythrogaster*.—Common summer resident.
129. *Tachycineta bicolor*.—Summer resident. Not common.
130. *Clivicola riparia*.—Common summer resident.
131. *Stelgidopteryx serripennis*.—Common summer resident.
132. *Ampelis cedrorum*. RICE-BIRD.—Common. Occurs irregularly at any time of the year.
133. *Lanius borealis*.—I have never seen any of the Shrikes here, but have Professor Caldwell's authority for the occurrence of *L. borealis* in winter.
134. *Vireo olivaceus*.—Common summer resident.
135. *Vireo philadelphicus*.—Rare migrant.
136. *Vireo gilvus*.—Rare migrant.
137. *Vireo flavifrons*.—Summer resident. Not common.
138. *Vireo noveboracensis*.—Common migrant.
139. *Vireo bellii*.—Very rare. Two seen, and one of them secured, July 16, 1887.
140. *Mniotilta varia*.—A not very common summer resident.
141. *Protonotaria citrea*.—Summer resident. Not common.
142. *Helinaia swainsonii*.—I am certain that I saw one August 29, 1887, but my only shell was loaded with No. 1 buckshot, and I failed to secure it. However, I have no doubt as to its identity.
143. *Helminthus vermivorus*.—Rare summer resident.
144. *Helminthophila chrysoptera*.—Rare migrant. In 1887 I saw it as late as November 14.
145. *Helminthophila ruficapilla*.—An uncommon migrant.
146. *Helminthophila peregrina*.—Rare migrant.
147. *Compothlypis americana*.—Common migrant.

148. *Dendroica aestiva*.—Formerly a common summer resident, but for the last two or three years quite a rare migrant.
149. *Dendroica coronata*.—Common migrant. A few may winter as I killed one January 16, 1886.
150. *Dendroica pensylvanica*.—A not very common migrant.
151. *Dendroica blackburniae*.—Very rare. Two seen July 25 1888.
152. *Dendroica dominica albilora*.—Summer resident. Not common.
153. *Dendroica virens*.—Common migrant.
154. *Seiurus aurocapillus*.—Common summer resident.
155. *Seiurus noveboracensis*.—A rather common migrant.
156. *Geothlypis formosa*.—Rare summer resident. One seen as late as November 28 in 1886.
157. *Geothlypis trichas*.—Common summer resident.
158. *Icteria virens*.—Very rare. The only one I have seen was killed by Mr. Charles Holcombe, Jr., September 23, 1887.
159. *Sylvania canadensis*.—Common migrant.
160. *Setophaga ruticilla*.—Common. Probably only a migrant, though I have seen it in August.
161. *Mimus polyglottos*.—Common resident.
162. *Galeoscoptes carolinensis*.—Common summer resident. In 1887 it arrived February 22.
163. *Harporhynchus rufus*.—Common summer resident.
164. *Thryothorus ludovicianus*.—Common resident.
165. *Thryothorus bewickii*.—Very rare. Only seen in winter.
166. *Troglodytes aëdon*.—Common resident.
167. *Troglodytes hiemalis*.—Very rare. My only note on this species is of one killed by Mr. T. L. M'Cutchen in December, 1885.
168. *Cistothorus palustris*.—Not common. I have only seen it as a migrant.
169. *Certhia familiaris americana*.—Common winter visitant.
170. *Sitta carolinensis*.—Common resident.
171. *Sitta canadensis*.—Common winter visitant.
172. *Parus bicolor*.—Common resident.
173. *Parus atricapillus*.—Rare winter visitant.
174. *Parus carolinensis*.—Common resident.
175. *Regulus satrapa*.—Migrant. Not so common as the next. One seen January 27, 1888.
176. *Regulus calendula*.—Common migrant.
177. *Polioptila cærulea*.—Common summer resident.
178. *Turdus mustelinus*.—Common summer resident.
179. *Turdus aonalaschke pallasii*.—Common migrant.
180. *Merula migratoria*.—Common winter visitant.
181. *Sialia sialis*.—Common resident.

INTRODUCED SPECIES.

182. *Passer domesticus*.—Abundant resident.
183. *Passer montanus*.—A few seen at different times. I think this species comes down from St. Louis on the steamboats, as the English Sparrow often does.

A SECOND SPECIMEN OF CORY'S BITTERN
(*BOTAURUS NEOXENUS*).

BY W. E. D. SCOTT.

MR. J. F. MENGE of Fort Meyers, Florida, spent a portion of the month of July, 1889, in exploring parts of Lake Okeechobee and the region immediately south of that body of water. During this trip on three occasions he met with this little known species (*Botaurus neoxenus*), and though he had but poor facilities for preserving and taking care of birds, he secured one of the individuals in question, which has come into my possession through the kindness of my friend Mr. J. W. Atkins of Key West. This bird, No. 3237 of my catalogue, is apparently an adult male, and was taken on July 9, 1889, at a point some thirty miles south of Lake Okeechobee and ten miles east of a point known as Sam Jones Old Town.

The region, from the account given by Mr. Menge, is very like that frequented by *Botaurus exilis*, being a large 'saw grass' on the edge of two large ponds, where the surface of the water is covered to a great extent with the large leaves of a kind of water-lily. The bird was first observed walking about on these leaves, and being disturbed, retreated to the 'saw grass' but presently, re-appearing, was secured.

As this is the second known representative of this species in any collection a brief description of the individual seems warranted. The entire upper surface, sides of head and neck and face, lower tail-coverts, outer surface of wing, except the coverts, are deep greenish black, similar in shade to the back of an adult male *Botaurus exilis*. This color is also the general tone of the belly, sides, and flanks, though a few whitish and some chestnut feathers are mixed with the prevailing color. The lower surface of the neck and the throat are bright chestnut. The greater, median, and lesser wing-coverts are dark like the back at their bases, but shade into deep chestnut terminally. The inner surface of the wing-feathers is drab. The edge of the wings at the shoulder and reaching to the base of the first primary, is light chestnut. The general appearance of the bird is dark greenish black, and Mr. Menge in speaking of the birds well calls them "Black Bitterns."

In size the bird is very near *Botaurus exilis*, perhaps a trifle smaller than the average of that species.

The following measurements are all taken from the dry skin before me. Length, 11.50 inches; wing, 4.60; culmen, 2.00; tarsus, 1.60.

From the meagre biographical notes that Mr. Menge was able to make, it would appear that the habits of *Botaurus neoxenus* are very like those of *B. exilis*.

A SUMMARY OF OBSERVATIONS ON THE BIRDS OF THE GULF COAST OF FLORIDA.

BY W. E. D. SCOTT.

(Continued from p. 252.)

Milvulus forficatus. SCISSOR-TAILED FLYCATCHER.—For notes on this species see Auk, Vol. VI, No. 2, April, 1889, p. 161. Mr. Atkins writes me that he has examined a single bird of this kind, taken at Miami by A. Lechevallier, but with no sex or date on the label.

Tyrannus tyrannus. KINGBIRD.—A common migrant and a few remain to breed. Not recorded during the winter months. The species arrives about Tarpon early in April (1-10) and the latest fall notes recorded are in the first week of October.

Mr. Atkins says, "Arrives at Punta Rassa going north the latter part of March. Occasionally found there until April 26. Young male birds taken August 20. Key West, first arrival noted March 20, last seen April 12. August 30 reappeared at Key West in large flocks, and was more or less common until October 15, after which the birds were not seen.

Tyrannus dominicensis. GRAY KINGBIRD.—An abundant migrant, and breeds in great numbers on the keys off the coast, affecting particularly such as are covered with mangrove. The earliest record I have of its arrival about Tarpon Springs is April 23, 1887, and the birds are common till late in September. The eggs are laid in this vicinity from about the middle to the last of May, and but one brood appears to be reared.

Mr. Atkins's notes are as follows: "Arrives at Punta Rassa middle of April; nests commonly on the islands and along the shore in mangrove bushes. Seems to prefer an isolated tree or bush near the water. Last noted at Punta Rassa September 13. Arrives at Key West about April 11. A few breed here. The main body returns with *Tyrannus tyrannus* and passes southward with that species."

Myiarchus crinitus. CRESTED FLYCATCHER.—Common migrant and rather rare summer resident. In the region about Tarpon the arrival in spring is about April 10, and during that month the birds are abundant. From the same locality I have also notes of the occurrence of the species in September. The birds that remain during the summer average deeper in coloring than northern examples at the same season of the year. Mr. Atkins says, "They are common at Punta Rassa in winter. One individual seen on August 25. Key West, January 24, 1889, one taken, the only record I have made here."

Sayornis phœbe. PHŒBE.—A migrant and winter resident. Abundant. "Common at Punta Rassa and Key West during the migrations and occasional in winter at both places."—J. W. Atkins.

Contopus virens. WOOD PEWEE.—A rather common migrant and rare summer resident, breeding sparingly about Tarpon Springs. Mr. Atkins says: "I have but one record at Punta Rassa, November 23, 1885."

Empidonax acadicus. ACADIAN FLYCATCHER.—A rare migrant. This is the only species of the genus *Empidonax* that I have met with in the vicinity of Tarpon Springs.

"One record at Punta Rassa September 13, 1886. No records at Key West."—J. W. Atkins.

Cyanocitta cristata florincola. FLORIDA BLUE JAY.—Abundant resident. This is particularly true of the neighborhood of Tarpon Springs. Breeds in this vicinity in April and May. Mr. Atkins did not find the species at Punta Rassa, but obtained it in the vicinity. He has been unable to detect the presence of the Florida Blue Jay at Key West or in the neighboring islands.

Aphelocoma floridana. FLORIDA JAY.—Common resident in suitable localities in all the country of the Gulf Coast north of Punta Rassa. Mr. Atkins has not found this species either at Punta Rassa or at Key West, or in the vicinity of either of these places.

Corvus americanus floridanus. FLORIDA CROW.—Common resident. Breeds about Tarpon Springs in April and May. At Punta Rassa Mr. Atkins records the species as very common and breeding in numbers. He has observed it more rarely at Key West, where it is unusual to meet with more than a pair at one time, and at which point he has not recorded the species as breeding.

Corvus ossifragus. FISH CROW.—Common resident at many points on the Gulf Coast and probably breeds, for though I have not found the nest, I have records of its occurrence in numbers as far south as Punta Rassa for every month in the year. In the fall these birds congregate in enormous flocks, and in October the berry of the palmetto is their favorite food.

Dolichonyx oryzivorus. BOBOLINK.—Common spring and fall migrant about Tarpon Springs, but absent in the summer and winter. In the spring they appear late in April and remain perhaps two weeks. At this time the male birds have assumed full plumage. Also see Auk for Vol. IV, p. 139. In the fall they arrive in large flocks about Tarpon Springs as early

as August 26, and are abundant through the month of September. Mr. Atkins found them common in fall at Punta Rassa, but very rare in spring at that point. But at Key West he says "they are abundant both as fall and spring migrants."

Molothrus ater. COWBIRD.—A not very common bird in the winter months about Tarpon Springs. While here the birds are most frequently associated with *Agelaius phoeniceus* and *Quiscalus quiscula aglaüs*. Found throughout the year commonly at Punta Rassa by Mr. Atkins, but not at Key West during the summer, though common during the remainder of the year.

Agelaius phoeniceus bryanti. BAHAMAN RED-WINGED BLACKBIRD.—The Red-winged Blackbirds collected by me in the vicinity of Tarpon Springs and further south appeared to be referable to this subspecies, and not having access to material for comparison I sent the series to Mr. J. A. Allen at New York who kindly examined them for me and has given his view in a letter, as follows: "The Red-wings I should refer on general grounds to *A. phoeniceus bryanti*, as I think this name may be used for resident South Florida birds, from at least Indian River southward, although the bill is less attenuated and less laterally compressed at the base than in our single Nassau specimen."

"At Punta Rassa the Redwings are common residents and breed, being more abundant in summer than in winter. At Key West I have not noted them in such large numbers though they are to be found the year round."—J. W. Atkins.

Sturnella magna mexicana. MEXICAN MEADOWLARK.—Common resident. Breeds in April and May about Tarpon. I cannot but agree with Mr. Chapman (see *Auk*, Vol. V, p. 273) as to the affinity of the form of the Meadowlark that occurs in this part of Florida. The peculiar suffused plumage assumed by the Meadowlarks in the fall in New Jersey, and which is worn throughout the winter months, is much more transitory here, and birds before me taken in December do not show it.

Since I wrote the foregoing Mr. Allen and Mr. Chapman have kindly examined a large series of Meadowlarks sent them by me and confirm the identity of the Florida representatives with *S. magna mexicana*. Referring to the matter Mr. Allen says: "He [Mr. Chapman] has had all of the Smithsonian material in hand, which with ours gives a considerable series of true *mexicana* and a very large series of Florida specimens. They furnish no characteristics by which they can be separated." I am indebted to both Mr. Allen and Mr. Chapman for their kindness in making these comparisons for me.

Mr. Atkins found this species at Punta Rassa in November, 1885, but regards it as uncommon at that point and has not met with the birds at Key West.

Icterus spurius. ORCHARD ORIOLE. A rather common migrant in the spring about Tarpon Springs. (See *Auk*, Vol. V, p. 186.) Mr. Atkins did not obtain this Oriole at Punta Rassa but on April 29, 1887, he took a young male, *i. e.*, in the yellow plumage with black throat, at Key West. This is the only time he has observed the species at that point.

Quiscalus quiscula aglaeus. FLORIDA GRACKLE. — Abundant resident and breeds in numbers in May in the region about Tarpon. I do not think that more than a single brood is reared each season.

"Not common at Punta Rassa but very abundant on the upper waters of the Caloosahatchie. Very common at Key West, where it breeds, arriving in large numbers about the middle of April."—J. W. Atkins.

Quiscalus major. BOAT-TAILED GRACKLE. — Common resident, and breeds in numbers, the season varying somewhat with the locality. At Tarpon the breeding season lasts from April to July and two broods of from three to five chicks are reared.

"Common at Punta Rassa, but only a few stragglers observed at Key West, these seen in September and October."—J. W. Atkins.

Spinus tristis. AMERICAN GOLDFINCH. — Not very common, but of regular occurrence as a winter visitor, during the several seasons I have spent at Tarpon Springs. The earliest record of appearance is December 30, 1877, and the birds then remained in small flocks. Occasionally seen till February 20. The only bird observed at a later date than that was a male taken on April 12, 1888, that had almost assumed full plumage. Mr. Atkins observed the birds in small numbers at Punta Rassa early in January, 1886. He says "the weather had been very cold there for some days previous to their arrival, ice forming in vessels containing water." Mr. Atkins has not observed the species at Key West.

Poocætes gramineus. VESPER SPARROW. — Rather common. Late fall and early spring migrant about Tarpon Springs, and a few winter in the vicinity. Mr. Atkins did not take the species at Punta Rassa and has only met with it on one occasion at Key West, when a single one was taken on January 29, 1888.

Ammodramus sandwichensis savanna. SAVANNA SPARROW. — A common migrant and winter resident in the neighborhood of Tarpon Springs. In the fall they arrive about October 14 and remain till April, though not common after March 1. Many winter both at Punta Rassa and at Key West, Mr. Atkins writes me.

Mr. Allen has kindly examined a large series taken at Tarpon Springs and other points, and writes me in regard to them as follows: "Of your series of fifty-two *Ammodramus sandwichensis savanna*, thirty-nine are October specimens and do not differ from northern birds taken at the same season. The darkest of them is exactly matched by birds from Englewood, New Jersey. The winter specimens (one taken in January, ten in February, one in March, and one in April) agree with northern spring specimens, except two which are blacker above and more heavily streaked below than any in our (rather small) series of northern birds. These are Nos. 4966, ♂, Tarpon Springs, February 28, 1888, and 5452, Key West, January 28, 1887. The next darkest specimens in your series are readily matched with northern birds and with the two exceptions named there is nothing peculiar in your series. The two very dark specimens I should consider as probably only cases of extreme individual variation."

Ammodramus savannarum passerinus. GRASSHOPPER SPARROW. —

A rather common migrant and winter resident about Tarpon Springs, where the birds arrive early in October, and remain till March 20 in numbers, and till April 6-10 rarely. The same remarks apply to both Punta Rassa and Key West, according to Mr. Atkins.

***Ammodramus henslowii*.** HENSLOW'S SPARROW.—Rather rare migrant and winter resident at points near Tarpon Springs, and I have taken the species as late as April 11 at this point. Mr. Atkins did not detect the species at Punta Rassa, nor has he found it at Key West.

***Ammodramus caudacutus*.** SHARP-TAILED FINCH.—A rather common migrant and winter resident about Tarpon Springs, and in suitable localities which I have visited both north and south of the Anclote River.

Mr. Allen in writing of some examples of this species which I sent to him from this point last year (see *Auk*, Vol. V. p. 284) spoke of slight differences which did not seem to warrant subspecific separation. In a recent letter, of additions to that material he writes me: "The eleven *Ammodramus caudacutus* agree exactly with those you sent last year. With this larger series, and also a larger series of northern birds for comparison, I still believe the differences too slight, and inconstant to warrant the separation of the Florida birds as a local or southern race of *A. caudacutus*, as quite a proportion of the southern birds are easily matched with Long Island and New Jersey specimens."

I am not aware that this species breeds on the Gulf Coast of Florida nor that it extends its migration much to the south of the mouth of the Anclote River. Mr. Atkins did not find it during the several seasons he collected at Punta Rassa, nor has that gentleman detected it in the vicinity of Key West.

***Ammodramus peninsulæ*.** SCOTT'S SEASIDE SPARROW.—During the past winter this bird was found to be very common in the salt water marshes both to the north and south of the Anclote River. I have collected in the months of December, January, and February of the winter of 1888-89 a series of sixty-seven of these birds. In the light of this new material I am inclined to regard this form as a *species* rather than as a *subspecies* of *Ammodramus maritimus*, and therefore propose this new rank for the bird in question. In this entire series there are no individuals that could not at a glance be selected from the true *maritimus*. The bird seems quite as distinct from that species as from *Ammodramus nigrescens*, and of equal value as a species to either of these two near allies.

The species does not, as far as I am aware, breed in the vicinity of the point where I found it wintering so abundantly, and I am inclined to believe that its migrations are not extended far to the south of the mouth of the Anclote River. During the winter of 1879-80, which I spent partly at the mouth of the Withlacoochee River and partly at Clear Water Harbor, I found the birds quite common at the former place, but though I looked for them carefully I did not detect them at any point in the salt marshes of Clear Water Harbor. Mr. Atkins has been unable to find the species at Key West, and did not meet with it at Punta Rassa.

***Chondestes grammacus*.** LARK SPARROW.—The two records of this

bird for the Gulf Coast already published in this journal are of an adult female taken by Mr. J. W. Atkins at Punta Rassa, September 26, 1886, and an individual seen by the writer on September 19, 1886, at Tarpon Springs. In addition Mr. Atkins secured one at Key West on October 6, 1887, and on the 10th of November, 1887, I saw one at Tarpon Springs, and watched it for some ten minutes or more. In the light of these several observations it seems probable that the bird is a regular though rare migrant on the Gulf coast of Florida.

Spizella socialis. CHIPPING SPARROW.—A not very common winter visitor in the vicinity of Tarpon Springs. Mr. Atkins has no notes on this or the next species from either of the points to the south where he has collected.

Spizella pusilla. FIELD SPARROW.—Not so common as the last, but of regular occurrence in the vicinity of Tarpon Springs in December and January.

Peucæa æstivalis. PINE-WOODS SPARROW.—A not very common resident in the immediate vicinity of Tarpon Springs, but common at many places on the Pinellas peninsula just to the south. They breed wherever they occur in this region. Mr. Atkins has not met with the species at either point where his investigations have been carried on.

Peucæa æstivalis bachmanii. BACHMAN'S SPARROW.—I had formerly considered that this subspecies probably bred in the vicinity of Tarpon Springs, but have come to regard it as a rare migrant and winter visitor, perhaps more common in late fall than at any other season. The earliest record I have is September 27, and the latest spring record is in February. Mr. Atkins has not met with it at Punta Rassa or Key West.

I sent to Mr. J. A. Allen the series of this and of *P. æstivalis* for examination and comparison, and after kindly looking them over he writes: "The twelve *Peucæas* taken in April and May are all typical *P. æstivalis*. Only seven of the series of fifty are *P. æstivalis bachmanii*; five of these are October specimens; one is dated September 27, and the other was taken in February. They are all probably migrants from the north. Of the thirty-six other September and October specimens I should consider one fourth of them as intermediates of various grades between *P. æstivalis* and *P. æstivalis bachmanii*."

Melospiza fasciata. SONG SPARROW.—A not very common but regular winter visitor about Tarpon Springs. Mr. Atkins did not notice it at Punta Rassa, nor has he observed it at Key West.

Melospiza georgiana. SWAMP SPARROW.—An abundant winter resident and common migrant in the vicinity of Tarpon Springs. Mr. Atkins took this species at Punta Rassa in winter on several occasions, but considered it uncommon. He has not observed it at Key West.

Passerella iliaca. FOX SPARROW.—Mr. Atkins took a single representative of this species at Punta Rassa in November, 1886. This is the only occurrence that I have record of.

Pipilo erythrophthalmus alleni. WHITE-EYED TOWHEE.—Common resident and breeds in numbers about Tarpon Springs in early April and

later. Mr. Atkins found it common at Punta Rassa in winter, and regarded it as rare in the breeding season at that point. The only record from Key West is of a single bird blown ashore in a heavy northwest gale in February, 1889. The bird was in an exhausted condition so that it was caught and caged.

Cardinalis cardinalis. CARDINAL.—Common resident, and breeds at all points visited on the Gulf Coast. At Key West, Mr. Atkins says: "It is rather rare, but few birds having been noted. But it is common on the keys north of here. The Cardinal is in great demand as a pet by the Cubans, and on that account is a regular feature of the auction rooms, being supplied from the northern keys and the mainland."

Habia ludoviciana. ROSE-BREASTED GROSBEEK.—I have not met with this species on the Gulf Coast where it seems to be a rare migrant. Mr. Atkins took three individuals at Key West on October 11, 1888. He did not meet with the species at Punta Rassa.

Guiraca caerulea. BLUE GROSBEEK.—Apparently a rare migrant on the Gulf Coast. On April 25, 1887, I took a male near Tarpon Springs and saw another. These are the only records that I have made personally and Mr. Atkins has not met with the species.

Passerina cyanea. INDIGO BUNTING.—I have no records for the Gulf Coast. Mr. Atkins says: "One record at Key West, an adult female taken April 12, 1887. Richly plumaged males are sometimes trapped by the boys in the spring. I have seen several that were so taken. I did not meet with the bird at Punta Rassa."

Passerina ciris. PAINTED BUNTING. — A rather common migrant and a few breed in the vicinity of Tarpon Springs. Mr. Atkins says "rather common migrant both at Punta Rassa and at Key West. Probably a few birds are resident at Punta Rassa where it breeds. Not observed in the breeding season at Key West."

Spiza americana. DICKCISSEL. — Mr. Atkins secured a single representative of this species at Key West, April 30, 1889. This is the only record that he has made and I have not met with the species.

Piranga erythromelas. SCARLET TANAGER.—This is a regular migrant but more common in spring than in fall in the vicinity of Tarpon Springs. At this point in spring the birds appear late in April, from the 24th to the 29th of the month, and are rather rare, remaining till May 2, later than which I have no records. Mr. Atkins did not note Scarlet Tanagers at Punta Rassa, but has taken the species at Key West on April 27 and 29, 1889, when he secured one bird on each day.

Piranga rubra. SUMMER TANAGER. — A migrant and summer resident in the vicinity of Tarpon Springs, where the species breeds in numbers. Here the birds arrive as early as the 4th of April, and females taken on the 18th and 20th of that month were laying or about to lay. They remain till late in September. On the 20th of that month in 1887 I secured an adult male in the *red plumage*, which had fully completed the fall moult. Mr. Atkins says the species occurs sparingly at Key West and at Punta Rassa as a migrant. His records at Punta Rassa are April 12, 1886, and

again on several occasions in October of the same year. At Key West he observed them on April 18 and 29, 1887, and on October 11 and 13, 1888, they were more abundant than at any other time.

Progne subis cryptoleuca. CUBAN MARTIN.—It seems probable that all Martins found *breeding* on the Gulf Coast of Florida, at least as far north as Tarpon Springs, are referable to this form, and though the material that I have before me is limited, yet one of the male birds is fairly intermediate between *P. subis* proper and what I think will ultimately have to be considered as the subspecies *P. subis cryptoleuca*, though the latter is now given specific rank. (See Check-List of North American Birds. Abridged Edition, Revised, 1889, p. 55, No. 611.1.) I have submitted material collected in the vicinity of Tarpon Springs to Mr. J. A. Allen, who concurs in the above views and from whose letters on the subject I quote as follows: "The Martins I should refer to *Progne subis cryptoleuca*, of which the single female and two of the males are fairly typical, judging from my limited material. The other male I should consider *an intermediate* between *P. subis* and *P. subis cryptoleuca*, which latter I believe at least only a geographical race of *P. subis*." As the birds are abundant in the breeding season in the town of Tarpon Springs and as I am expecting additional representatives from at least two points to the south on the Gulf Coast, as well as from Key West, I hope at an early date with more abundant material to deal conclusively with the subject. At Tarpon Springs it is difficult to obtain the birds as they are almost confined to the town limits, where shooting of all birds at any season is prohibited. At this point the first Martins to arrive are seen as early as the first week in March, but I suspect these are representatives of true *P. subis* on their way north, as the birds that frequent the Martin boxes in the town do not seem at all common until the first week in April, and do not nest until the middle or last of that month. Mr. Atkins noticed the first Martins at Punta Rassa on March 20, 1886, and saw them frequently during the summer "at a point on the beach near the pine trees." "Evidently breeds." He has also noted Martins as rather common migrants at Key West, but has not found them breeding at that point.

Chelidon erythrogaster. BARN SWALLOW.—A common spring and very abundant fall migrant, and a few are met with in warm days throughout the winter, in the vicinity of Tarpon Springs. Some few breed at or near the same point. Mr. Atkins's observations at Punta Rassa and Key West coincide with what I have written above, except that he has not observed the birds breeding, though he has seen them at Key West on June 11, and again on August 6-10 in numbers.

Tachycineta bicolor. TREE SWALLOW.—A more abundant migrant and winter resident in the region about Tarpon than the last. Mr. Atkins finds them to be much rarer migrants than the Barn Swallow at both Punta Rassa and Key West.

Clivicola riparia. BANK SWALLOW.—Observed in fall and spring as an uncommon migrant in the vicinity of Tarpon Springs. Mr. Atkins has not met with the species at either of the points on the Gulf coast where he has collected.

Stelgidopteryx serripennis. ROUGH-WINGED SWALLOW.—Not very common in April, 1887, in the vicinity of Tarpon Springs, which is the only point where I have observed the species.

Ampelis cedrorum. CEDAR WAXWING.—Observed in flocks feeding on mulberries in early April, 1887, at Tarpon Springs. At Hog Island, five miles south of Anclote Keys and four miles from the main land, I took four from a large flock that were feeding among the mangroves on May 2, 1888. Mr. Atkins has no records of the species at Punta Rassa or at Key West.

(To be continued.)

RECENT LITERATURE.

Barrows's Report on the English Sparrow in North America.*—This 'Report,' of about 400 pages, exhaustively treats the subject under consideration, presenting the evidence, pro and con, at great length, and with evident fairness. The work is based primarily on the replies of over three thousand observers to circulars of inquiry sent out by the Division of Economic Ornithology of the Department of Agriculture, and secondarily on previously published evidence, the whole carefully elaborated and thoroughly systematized. Part I, entitled 'Summaries of Evidence—Recommendations—Special Reports,' occupies pp. 17-194, and treats (1) of the importation, spread, and increase of the species, and the checks upon its increase; (2) of the injuries it inflicts in various ways upon fruits, grains, and garden vegetables; (3) its relation to other birds; (4) its relation to insects; and contains (5) recommendations for legislation, and suggestions to the people at large; (6) a paper by Dr. A. K. Fisher, Assistant Ornithologist of the Division, on the destruction of the Sparrow by poisons; (7) a paper on trapping Sparrows (illustrated), by Mr. W. T. Hill; and (8) a history of the English Sparrow and European Tree Sparrow (*Passer montanus*) at Saint Louis, Mo., by Mr. Otto Widmann. This Part also includes a paper of 20 pages by Prof. C. V. Riley, Entomologist of the Department of Agriculture, on the 'Relation of the Sparrow to Insects,' based on the examination of the contents of over 500 Sparrow stomachs, followed by tabular statements of food, as shown by dissection of Sparrows' stomachs made at the Department of Agriculture.

* U. S. Department of Agriculture. | Division of Economic Ornithology and Mammalogy. | Bulletin I. | — | The | English Sparrow | (*Passer domesticus*) | in North America, | especially in its Relation to Agriculture. | — | Prepared under the direction of | Dr. C. Hart Merriam, Ornithologist, | by | Walter B. Barrows, | Assistant Ornithologist. | — | Washington : | Government Printing Office. | 1889.—8vo, pp. 405, with map.

Part II (pp. 197-357) gives 160 pages of previously unpublished evidence bearing on its distribution, rate of increase, and its injurious relations to agriculture, through its destruction of fruit buds, foliage, fruits, garden seeds, garden vegetables, and grain, and through its antagonism to native birds and its relation to insects. This is followed by 57 pages of previously published testimony, about one half of which relates to its American history, while about 20 pages are devoted to its record and status in Europe (relating mainly to England), and ten to its history and status in Australia.

The evidence presented is overwhelming against the 'eligibility' of the Sparrow in America. Its injuries to various kinds of fruits and vegetables are classified under appropriate headings, and the evidence presented is given in the language of the reports of correspondents, alphabetically arranged by States and towns. Of the reports received (owing to their number and volume only a part are given), about one to five per cent, in respect to injuries to small fruits, vegetables, and grains, are favorable to the Sparrow; about three to eight per cent are indecisive; while upward of ninety per cent are classified as wholly unfavorable. The evidence bearing upon its relation to other birds is hardly more favorable, specific statements of its persecution of our native birds being abundant and related with convincing detail. Respecting the food of the Sparrow, as determined by actual dissections of stomachs, the testimony is not encouraging to those who believe in his efficiency as a destroyer of noxious insects. Thus of 522 stomachs examined only about one in six contained any insect remains, and of these remains two thirds were of beneficial insects or of insects of no economic importance, reducing the proportion of noxious insect remains, compared with the total contents of the stomach, to an almost infinitesimal amount.

Various suggestions are made for the eradication of the pest, but none of them seem to offer much hope of success, in view of its great abundance, wide distribution, and rapidity of increase, since only general and concerted action at all points where it has appeared would give reasonable hope of its extirpation; and this, in the nature of things, is hardly to be expected. Much can be done, however, to check the rate of increase and more or less energetic and general measures will doubtless soon be resorted to on the part of those whose interests are most directly attacked.

The information given in this admirable report can not fail to arouse general interest in the subject, and lead to important economic results and more intelligent legislative action, the House Sparrow being still a 'protected' bird in two thirds of the States and Territories which have laws for the protection of harmless or beneficial birds. In only seven is the Sparrow left an outlaw, and in only three is there any aggressive legislation against it, Michigan and Ohio offering a bounty for its destruction. Mr. Barrows, however, argues at length, and very justly and conclusively against the expediency of offering bounties, as such a policy would not only prove inefficient but enormously expensive. He urges, however, the

formation of Sparrow Clubs, whose object shall be the destruction of these birds by concerted action, the offering of prizes, etc. Shooting in winter time of flocks decoyed by food advantageously spread for the purpose, and the destruction of nests, and disturbing their roosting places, are among the suggestions for their decrease. Directions for the preparation and use of poisoned food are also given, which, if used with proper care, might yield very satisfactory results.

With all the light now thrown upon the subject, it would seem that the Sparrow can have few friends among intelligent people. Those who still believe in him as a desirable addition to our fauna must be of the class Mr. Barrows so happily characterizes in his 'Introduction' as "persons whose minds are so constituted that nothing is evidence to them except what is derived from their own observation, and as this unfortunate mental infirmity is commonly correlated with the total inability to observe anything which interferes with their theories, it makes little difference whether their opportunities have been good or bad, their position is unassailable. . . . No amount of evidence will change their opinion, and fortunately for the good of mankind it makes little difference what that opinion may be."

'Bulletin I' of the Division of Economic Ornithology is a most thoroughly creditable and utilitarian piece of work, vindicating effectively the need and wisdom of establishing such a department of research as a part of the legitimate work of the U. S. Department of Agriculture. 'Bulletin I' also admirably completes an investigation originally started by a Committee of the American Ornithologists' Union.—J. A. A.

Davie's Nests and Eggs of North American Birds.—Under a new title,* the words 'Check-List and Key' being very properly omitted, the third edition of this popular book appears as practically a new work, containing six additional engravings and more than twice the matter of previous editions. The nomenclature and classification of the A. O. U. Check-List is adopted and the habitats allotted to each species and subspecies are for the most part taken with little or no change from the same authority. The text, which in previous editions was limited to mere descriptions of nests and eggs with brief notes on distribution or habits, is now greatly extended, a page or more frequently being devoted to a single species, and in many cases the remarks form nearly complete biographies. The author appears to be well informed on his subject and he has freely availed himself of existing oölogical literature, the work abounding in valuable references, and he also includes much new material derived by him through correspondence with other observers. He presents (p. 120) strong evidence of the breeding of *Totanus flavipes* in Ohio, "a well-formed egg"

*Nests and Eggs | of | North American Birds | by | Oliver Davie | Third Edition, Revised and Augmented | Introduction by J. Parker Norris. | Illustrations | by | Theodore Jasper, A. M., M. D., and W. Otto Emerson | — | Columbus | Hann and Adair | 1889.—8vo pp. [1-8], 1-455, i-xii, pll, i-xiii.

being taken from a female killed June 14, 1888, and in the appendix (p. 446) records the capture in the same State of two specimens of *Nyctala acadica* which had just left the nest, also the capture of a single *Zonotrichia querula* April 28, 1889, near Columbus, Ohio. The nesting and eggs of *Spizella pusilla arenacea* are described (p. 309) as "indistinguishable from *S. pusilla*," but on just what authority is not stated. The practice of omitting species and subspecies "of which no authentic account of either their nests or eggs has been obtained" (preface) without further explanation than is conveyed by a break in the enumeration is apt to lead to confusion by conflicting with the same method employed in eliminating species and subspecies from the A. O. U. Check-List which have been excluded for widely different reasons. In this manner, however, we learn that the nest or eggs of ninety-one species and sixty-eight subspecies are as yet undescribed. While without by any means attempting to supply references to the existing literature on the nidification of these species the reviewer adds such as are known to him for the benefit of a fourth edition of this work which he understands is soon to be issued. *Brachyrhamphus kitliti*, see Turner, Cont. to Nat. Hist. of Alaska, 1886, p. 121. *Larus minutus*, eggs described by Liljeborg, Naumania, 1852, p. 110. *Colinus virginianus cubanensis*, described by Gundlach, Journal für Ornithologie, 1874, p. 303. *Falco sparveroides*, described by the same author, *op. cit.*, 1871, p. 373. *Scotiapex cinerea lapponica* described by Dresser, Birds of Europe, V, p. 281. *Surnia ulula*, described by the same author, *op. cit.*, p. 301. *Chordeiles virginianus chapmani*, described by Scott, Auk, V, 1888, p. 186. *Myiozetetes texensis*, described by Salvin and Godman, Biol. Cent. Am., II, p. 41. *Myiarchus lawrencei*, described by Sclater, P. Z. S., 1859, p. 384. *Aphelocoma californica hypoleuca*, described by Bryant, Proc. Cal. Acad. Sc., 2nd Ser., II, p. 20.* *Sturnella magna mexicana*, described by Salvin and Godman, Biol. Cent. Am., I, p. 458. *Carpodacus mexicanus ruberrimus*, described by Bryant, *op. cit.* p. 23.* *Acanthis hornemannii*, described by Dresser, Birds of Europe, IV, p. 55. *Melospiza fasciata rivularis*, described by Bryant, *op. cit.*, p. 22.* *Euetheia canora*, described by Thienemann, Journal für Ornithologie, 1857, p. 150. *Progne cryptoleuca*, described by Gundlach, *ibid.*, 1872, p. 431. *Geothlypis beldingi*, described by Bryant, *op. cit.*, p. 20.* *Anthus cervinus*, described by Dresser, Birds of Europe, III, p. 299. *Troglodytes alascensis*, described by Turner, Cont. to Nat. Hist. of Alaska, 1886, p. 181. *Psaltiriparus lloydi*, described by Sennett, Auk, V, 1886, p. 43. *Phyllopesustes borealis*, described by Seebohm, Ibis, 1879, p. 9. It is evident that these omissions relate largely to species of rare or accidental occurrence and they therefore detract very little from the value of the work, which we are sure will be welcomed alike by ornithologists and oölogists as a most convenient hand-book on the nesting habits and distribution during the breeding season of North American birds. — F. M. C.

*This description appeared at too late a date to be included in Mr. Davie's work,

Birds Through an Opera Glass.*—This little volume of some 223 pages is made up of sixty chapters, each of which relates to a single bird. Most of the species are the more conspicuous or interesting of our northern birds, the author's observations having been made either at Northampton, Massachusetts, or Locust Grove, New York. Many of the chapters were published in the 'Audubon Magazine' for 1886. These have been revised and largely re-written; the others now appear for the first time. The work is illustrated by some good woodcuts taken from Baird, Brewer, and Ridgway's 'History of North American Birds.' There is a preliminary chapter entitled, 'Hints to Observers', which includes a few simple and excellent rules intended for beginners.

Miss Merriam belongs to that class of observers and writers of which, so far as North America is concerned, Thoreau may be said to have been the originator, and Burroughs, Torrey, Maurice Thompson, and others, the disciples and followers. As with all of these, her field work seems to have been instigated and directed by an innate love of the woods and fields, and an interest, at once strong and affectionate, in their feathered inhabitants. Her sole weapon has been not a gun, but an opera glass; her object not the acquisition of specimens, but the study of the manners and habits of the living birds. Evidently she is particularly interested in their songs and call notes, for these receive marked attention in all her biographies. Her descriptions of them are perhaps as successful as those of most writers in this field, but it may well be doubted if it is really worth while to attempt anything definite of this kind. Either different ears hear differently, or, as is more probable, most bird notes are impossible of adequate rendering into words.

As an observer, Miss Merriam is unmistakably keen, discriminating, and accurate; as a writer, always simple and true, at times highly vigorous and original. Her attractive little book may be cordially recommended to all who wish to study our familiar birds, either with or without an opera glass.—W. B.

Stone's Catalogue of the Muscicapidæ in the Collection of the Philadelphia Academy of Natural Sciences.†—Mr. Witmer Stone, a promising young ornithologist of Philadelphia, already well known to the readers of 'The Auk,' presents us in the present paper a catalogue of the Muscicapidæ, or Old World Flycatchers, contained in the Museum of the Academy of Natural Sciences of Philadelphia. This collection, as is well known, is rich in types, containing as it does Gould's types of his 'Birds of Australia,' and most of the types of the species described by Cassin, and much historic material from the collections of Gen. Massena, the Duke of Rivoli, Prince d'Esling, and Du Chaillu. Since the death of the late

* *Birds Through an Opera Glass* | by Florence A. Merriam | Boston and New York | Houghton, Mifflin & Company | The Riverside Press, Cambridge | 1889.

† *Catalogue of the Muscicapidæ in the Collection of the Philadelphia Academy of Natural Sciences*, By Witmer Stone, *Proc. Acad. Nat. Sci. Phila.*, 1889, pp. 146, 154.

John Cassin, in 1869, the Academy's collection of birds, though so important and valuable, has had no proper curator, and has consequently suffered from neglect and disuse. We are, however, pleased to learn that it has escaped serious harm from insect pests, and is now in the hands of an energetic and efficient worker who, as an assistant curator of the Museum, is especially in charge of the birds, and is not only bringing them into an orderly condition, but making known the contents of the collection.

The 'Catalogue' under notice enumerates 156 species, or about three eighths of all the known species of the family Muscicapidæ, represented by 502 specimens, including the types of 34 species. The specimens are not formally enumerated, generally merely the localities being given from which the species are represented, with here and there a few critical remarks respecting the status of certain forms, and on interesting phase of plumage. In the main the nomenclature and arrangement of Mr. Sharpe's 'Catalogue' of the family (Bds. Brit. Mus., Vol. IV) is followed. In a former paper* Mr. Stone has given his reasons for believing the *Pratincola salax* Verr. = *P. sybilla* (Linn.). We are pleased to learn that similar 'Catalogues' of other families may be soon expected.—J. A. A.

Bergtold's List of the Birds of Buffalo and Vicinity.† — This briefly annotated list numbers 237 species and subspecies. Says the author: "The present purpose is to record the name of every bird known to occur or to have occurred in this locality. . . . The names of no species have been admitted when the least shade of doubt existed as to the authenticity of their occurrence. In order to be authentic a bird must either have been taken and identified by competent persons, or if seen alive and not taken, must have been of such easy recognition as to exclude the slightest uncertainty regarding its determination." Acknowledgments of indebtedness are made in the preface to various observers, and in cases where species are admitted on the authority of others, the name of the authority is given as a part of the record. The arrangement and nomenclature is that of the A. O. U. Check-List.

Among the records of special interest is the capture of the Skua (*Megalestria skua*) on Niagara River in the spring of 1886, by Prof. Chas. Linden, and a pair of Evening Grosbeaks (*Coccothraustes vespertina*) taken in 1886, by B. W. Fenton. The Carolina Chickadee (*Parus carolinensis*) is given as a straggler. The Yellow-crowned Night Heron (*Nycticorax violaceus*) and Wilson's Plover (*Egialitis wilsonia*) are recorded as migrants, on the authority of Prof. Linden. It would be of interest to know whether specimens of these two species taken near Buffalo are

* On *Pratincola salax* Verr. and Allied Species. Proc. Acad. Nat. Sci. Phila., 1889, pp. 78-80.

† A List of the Birds of Buffalo and Vicinity. By W. H. Bergtold, M. D., President of the Buffalo Naturalists' Field Club, etc. Reprinted from the Bulletin of the Buffalo Naturalists' Field Club of the Buffalo Society of Natural Science. Buffalo, N. Y., 1889, 8vo. pp. 21.

extant. We are also surprised to see the Common Cormorant (*Phalacrocorax carbo*) given (on the author's own authority) as a rare migrant, this being a strictly maritime species, while *P. dilophus* is not infrequent on the Great Lakes, though not given in the list.

The rather northern character of the fauna is indicated by the breeding of such species as the Winter Wren, the Mourning Warbler, the Canadian Warbler, the Red-bellied Nuthatch, the Hermit Thrush, the Yellow-bellied Flycatcher, and the Slate-colored Junco.

The list is obviously far from complete, and further observations will doubtless prove that many species now given as merely migrants are really more or less common summer residents. It has, however, evidently been prepared with considerable care. The author appeals to ornithologists familiar with the region in question for aid in perfecting it.—J. A. A.

Keyes and Williams's Preliminary Catalogue of the Birds of Iowa.*—The present brochure is stated to be preliminary to a more extended account of the birds of Iowa already in course of preparation. The authors state that "only such species are inserted as have come under the personal observations of the writers," and that "for the most parts skins or mounted specimens" of the species enumerated are to be found in their collections. The observations have been made mainly "in the vicinities of Charles City, Des Moines, and Iowa City," but are supplemented by notes made at various other points. The dates of arrival and departure are based on studies made chiefly at Des Moines.

The list follows the classification and nomenclature of the A. O. U. Check-List, including the names of the higher groups, from order to subgenus, as well as of the species. The latter are not, however, numbered, but a careful count shows the number recorded to be 260. The list is very fully and carefully annotated. It is evidently highly trustworthy, and exceedingly creditable in respect to typography and general execution.—J. A. A.

Taylor's Catalogue of Nebraska Birds.*—Nebraska, like Kansas and some of the other Central States, includes portions of two quite distinct faunal regions, although mainly within the so-called Middle Province of the continent. The eastern border of the State lies so far eastward as to include nearly all of the species proper to the States east of the Mississippi River, while the western part of the State is fairly within the arid,

* A Preliminary Annotated Catalogue of the Birds of Iowa. By Charles R. Keyes and H. S. Williams, M. D. Extracted from Proceedings Davenport Academy Natural Sciences, Vol. V. Davenport, Iowa. 1888. 8vo, pp. 49.

* A Catalogue of Nebraska Birds arranged according to the Check List of the American Ornithological Union. By W. Edgar Taylor, State Normal, Peru, Nebraska. Ann. Rep. Nebraska State Board of Agriculture, for the year 1887, pp. 111-118. Published, 1888.

treeless 'Middle Province' area. It is thus not surprising that the bird fauna of the State should include a large proportion of the characteristic species of both the East and the West, resulting in an aggregate much above that of any area of similar extent situated either east or west of this equivocal middle district belt. In the present "provisional list," designed as a temporary aid in the further careful study of the birds of the State, 314 species and subspecies are recorded. The author states that the list is based, in addition to his own "comparatively meagre" observations, upon every source of reliable information, published or unpublished, open to him, including records published in Baird's 'Birds of North America,' Dr. Aughey's 'Locust Feeding Birds,' and the records and collections of the Normal Science Society, and of various personal friends. The list is briefly annotated, and is apparently very carefully compiled. It is put forth as merely a temporary, tentative list, to be completed by further study of the birds of the State. A number of western forms of eastern species which are unquestionably common in the western part of the State are omitted. The "*Zonotrichia gambeli*," given on Baird's authority, is of course the *Z. intermedia* of recent authors. With this exception we notice no improbable records. Its appearance is somewhat marred by its being set 'solid' and in small type, and by the use of a capital initial letter for each species and subspecies—matters probably beyond the control of the author.—J. A. A.

Shufeldt's Recent Contributions to the Osteology of North American Birds.—Since our last notice of Dr. Shufeldt's contributions to his favorite subject numerous papers of his have reached us, including Parts II-IV of his 'Contributions to the Comparative Osteology of Arctic and Sub-arctic Water-birds',* treating of the genera *Uria*, *Synthliborhamphus*, *Brachyrhamphus*, *Cepphus*, *Cerorhinca*, *Ptychorhamphus*, *Cyclorhynchus*, and *Simorhynchus*. The osteology of the genus *Uria* is compared at length with that of *Alca*, previously treated in Part I, while the accompanying plates give figures of the principal skeletal parts of *Chionis*, *Hamatopus*, and *Larus*. Parts III and IV are illustrated with 25 figures in the text.

In 'Observations upon the Osteology of the North American Anseres',† the skeletal structure of our Ducks, Geese, and Swans is passed in review, and illustrated by 30 'process' cuts in the text. Another elaborate memoir treats of the osteology of the Tubinares and Steganopodes,‡ with 43 illustrations in the text. The forms treated at greatest length are *Oceanodroma furcata*, *Fulmarus glacialis rodgersii*, *Diomedea albatrus*, *Sula bassana*, *Phalacrocorax urile*, and *Pelecanus fuscus*. We have also received Part I of 'Osteological Studies of the Subfamily Ardeinæ'.§ In

* Journ. Anat. & Phys., Vol. XXXIII, pp. 165-186, pll. vii-xi; pp. 400-427; pp. 537-558.

† Proc. U. S. Nat. Mus., 1888, pp. 215-251.

‡ Observations upon the Osteology of the Orders Tubinares and Steganopodes. Proc. U. S. Nat. Mus., 1888, pp. 253-315.

§ Journ. Comp. Med. & Surg., July, 1889.

these various papers the osteology of the species treated is described at length, compared with that of related forms, and illustrated with numerous excellent figures of the principal elements of the skeleton.—J. A. A.

Gould's Supplement to the Trochilidæ.*—The 'Supplement to the Trochilidæ, or Humming Birds,' now recently completed in five parts, was projected shortly before Mr. Gould's death in 1881. It forms a single folio volume of 58 plates and text, prepared and published under the direction of Mr. R. Bowdler Sharpe, with the coöperation of Mr. Osbert Salvin. The work on the Hummingbirds, as now completed, forms six imperial folio volumes, with upwards of 400 plates, illustrating about 450 species. It is needless to say that this magnificent monograph of the most beautiful and interesting family of birds, illustrated with a delicacy and gorgeousness well befitting the gems of bird life it portrays, is not only a monument to its author, but one of the most attractive ornithological works yet produced. While the 'Supplement' falls somewhat short of covering the whole field of recent discovery in respect to this group of birds, it forms a fitting conclusion to the great 'Monograph' begun by Gould in 1849—nearly forty years before the completion of the 'Supplement.'—J. A. A.

Publications Received.—Berlepsch, Hans von. (1) Description of two New Birds from Northern Peru. (*Ibis*, Apr. 1889, pp. 180, 181, pl. VI.) (2) Beschreibung eines neuen Colibri und Bemerkungen über eine Collection von Vogelbälgen aus der Umgegend von Sta. Fé de Bogota in Colombia. (*Zeits. f. Orn.*, 1887, pp. 177-187, pl. iii.) (3) Systematisches Verzeichniss der von Herrn Gustav Garlepp in Brasilien und Nord Peru, im Gebiete desoberen Amazonas gesammelten Vogelbälge. (*Journ. f. Orn.*, Jan., 1889).

Brewster, W. The Woodcock and the Worm. (*Forest & Stream*, Aug. 1, 1889.) (2) The Woodcock's Whistle. (*Ibid.*, Aug. 22, 1889.)

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* Supplement to the Trochilidæ or Humming Birds. One Volume, imp. folio. H. Sotheran and Co., London and Manchester, 1885-87.

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Shufeldt, R. W. (1) Observations upon the Osteology of the North American Anatidæ. (Proc. U. S. Nat. Mus., 1888, pp. 215-251.) (2) Observations upon the Osteology of the Orders Tubinares and Steganopodes. (Ibid., pp. 253-315.) (3) Osteological Studies of the Subfamily Ardeinæ. Part I. (Journ. Comp. Med. & Surg., July, 1889.) (4) Contributions to the Comparative Osteology of Arctic and Subarctic Waterbirds. Pts. II-IV. (Journ. An. & Phys., Vol. XXXIII.)

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GENERAL NOTES.

A New Duck for Massachusetts, *Nomonyx dominicus*.—A fine adult male specimen of *Nomonyx dominicus* (Linn.) was shot in a small pond near Malden, Mass., on August 27, 1889. It was brought to Messrs. Goodale and Frazar (93 Sudbury St., Boston) to be stuffed, and it was by the kindness of Mr. Goodale that I had the pleasure of examining it in the flesh. The color of the upper mandible was light blue with a narrow middle stripe of black. The feet were gray. This is, I believe, the first record for this species in Massachusetts, and the third for North America. (See Baird, Cassin, and Lawrence, B. N. A., p. 925 (1860); Cabot, Proc. Boston Soc. Nat. Hist., VI, p. 375, XIV, p. 154; and American Nat., V, p. 441.)—CHAS. B. CORY, *Boston, Mass.*

***Phalaropus lobatus* and *Phalaropus tricolor*.**—I saw four *Phalaropus lobatus* here June 18. Two killed were females with ova the size of No. 12 shot. I believed them to be last year's birds.

I came upon three *Phalaropus tricolor* at play the afternoon of May 16 just as the sun shone for the first time after a two days' cold storm of rain and snow. They were in shallow still water, about a foot apart, forming a triangle, and each kept in nearly the same place while they spun about rapidly like tops. They would often pause for a little while with bills pointing inward and then at the same moment resume their spin, each apparently doing its best to go the fastest. I watched them for ten minutes at less than twenty-five yards' distance, and their light graceful bodies riding like corks the little waves of their own making was a pretty sight. I reluctantly killed them and found them to be an old female and male and a last year's male.—P. M. THORNE, *Capt. and Inst., Fort Keogh, Montana.*

Nesting Habits of the Parakeet (*Conurus carolinensis*).—While in Florida during February and March, 1889, I questioned everybody whom I met regarding the nesting of the Parakeet. Only three persons professed any knowledge on this subject. The first two were both uneducated men—professional hunters of alligators and plume birds. Each of them claimed to have seen Parakeets' nests, which they described as flimsy structures built of twigs and placed on the branches of cypress trees. One of them said he found a nest only the previous summer (1888), while fishing. By means of his pole he tipped the nest over and secured two young birds which it contained.

This account was so widely at variance with what has been previously recorded regarding the manner of nesting of this species that I considered it, at the time, as a mere fabrication, but afterwards it was unexpectedly and most strongly corroborated by Judge R. L. Long of Tallahassee. The latter gentleman, who, by the way, has a very good general knowledge of the birds of our Northern States, assured me that he had examined

many nests of the Parrakeet built precisely as above described. Formerly, when the birds were abundant in the surrounding region, he used to find them breeding in large colonies in the cypress swamps. Several of these colonies contained at least a thousand birds each. They nested invariably in small cypress trees, the favorite position being on a fork near the end of a slender horizontal branch. Every such fork would be occupied, and, he has seen as many as forty or fifty nests in one small tree. Their nests closely resembled those of the Carolina Dove, being similarly composed of cypress twigs put together so loosely that the eggs were often visible from the ground beneath. The twigs of the cypress seemed to be preferred to those of any other kind of tree. The height at which the nests were placed varied from five or six feet to twenty or thirty feet. Mr. Long described the eggs as being of a greenish white color, unspotted. He did not remember the maximum number which he had found in one set, but thought it was at least four or five. He had often taken young birds from the nests to rear or to give to his friends. He knew of a small colony of Parrakeets breeding in Waukulla Swamp, about twenty miles from Tallahassee, in the summer of 1885, and believes that they still occur there in moderate numbers.

It seems difficult to reconcile such testimony with the statements of Audubon, Wilson, and others that the Carolina Parrakeet lays its eggs in hollow trees. It may be, however, that, like the Crow Blackbird and some of the Owls, this Parrot nests both in holes and on branches, according to circumstances; at all events the above account has seemed to me to rest on evidence sufficiently good to warrant its publication.

I may add in this connection that the wide-spread impression that the Parrakeet is on the verge of extinction, is not literally correct. A few are still found as far north in Florida as the Weekiva River bottom, while south of Kissimee they are still actually abundant over a region of considerable extent. Everywhere, however, they are decreasing fast, and unless steps are taken to protect them from the ravages of the specimen and plume hunters, who invariably shoot all that come in their way, the total extermination of the species can be a matter of only a few more years.—WILLIAM BREWSTER, *Cambridge, Mass.*

Melanerpes carolinus Eating Oranges.—As corroborating Dr. Warren's account in his late report on the birds of Pennsylvania, it may be worth while to state that when at Enterprise, Florida, in February, 1889, I observed a Red-bellied Woodpecker eating the pulp of a sweet orange. He flew down to the ground and, hopping along rather clumsily, approached an orange, and for several minutes pecked at it in a slow deliberate way. When I showed myself he at once took flight, and sought shelter in the dense foliage of the trees above. Upon examining the orange, I found that it was decayed through the whole of one side. In the sound portion were three holes, each nearly as large as a silver dollar, with narrow strips of peel between them. The pulp had been eaten out quite to the middle of the fruit. Small pieces of rind were thickly strewn about the spot. Upon searching closely I discovered several other oranges that had been

attacked in a similar manner. All were partially decayed, and were lying on the ground. I was unable to find any on the trees which showed any marks of the Woodpecker's bill. The owner of this grove was surprised when I called his attention to the above facts, which were quite new to him. Nor had any of the other orange growers in the neighborhood any knowledge of this orange-eating habit of the Red-bellied Woodpecker.—WILLIAM BREWSTER, *Cambridge, Mass.*

The Fish Crow (*Corvus ossifragus*) in Connecticut.—I have the pleasure of recording a few notes on the Fish Crow in this State. For several years I have detected birds of the Crow family along the shore, which, from the notes, method of flight, and apparently smaller size almost convinced me they were Fish Crows, but until this season had no opportunity to verify the belief. On the 10th of May I killed a fine specimen in an extensive tract of swampy woods bordering a salt marsh in Stratford, and saw two others at the same time; the latter, being highly excited at the disappearance of the other, circled about some time calling loudly but finally quieted without offering a shot. Many times afterward I saw the birds, and others, seeing no less than four at one time (May 29), all mature birds. The one secured, although a male, showed evidence of having assisted in incubation, but owing to the dense and almost impassable nature of this swamp no nest was found.

In Fairfield, a pair was seen many times, and a nest found before it was entirely finished, but I watched them so persistently that they soon deserted. They must have reared young elsewhere, as subsequently on several occasions previous to the middle of June they exhibited much alarm at my approach, circling about overhead by the hour in a highly vexed and tireless fashion, following me sometimes for half a mile. Although I saw no young I need no better evidence than their actions to convince me that they were breeding.

Linsley in his 'Catalogue of the Birds of Connecticut' gave the Fish Crow as occurring at "Stratford," but added no further remarks. Within one or two years others have been taken here, of which no record has been published. It is not common, but it may be called not a rare bird, and I think has been largely overlooked from its resemblance to *Corvus americanus*. I feel confident the species also winters here, as I have several times seen what certainly appeared to be Fish Crows, feeding on the sand bars at low tide, retiring to the woods at high tide, and never associating with the common species.—EDWIN H. EAMES, *Bridgeport, Connecticut.*

Mortality among Eave Swallows.—A calamity which has affected two or three species in this section may be worth chronicling. Early in the month of June, 1889, I was asked by two or three persons as to what had become of the Eave Swallows (*Petrochelidon lunifrons*), it being reported that but very few were to be seen. An investigation revealed the fact that not over five per cent of them were to be found. They had, however, come in their usual numbers earlier in the season. An examination of the newly completed nests revealed dead birds in nearly every nest. Large

numbers were also found dead on the ground in the vicinity of the buildings frequented by them. Twenty-two nests were examined on one barn, about six miles northeast of this city, and thirty-seven dead birds were found in the nests. About two miles from this barn one hundred nests were examined on a large barn and dead birds were found, one or more in each nest. Five or six miles northwest of the city a like condition of affairs was reported. An investigation in a section of country six or eight north and fifteen or twenty miles south of the city revealed a similar destruction of Eave Swallows; the ground about the barn on one farm was reported "covered with dead birds." The dead specimens examined were exceedingly emaciated, and they apparently had starved to death. Their crops were empty.

Probably the cause of this destruction was as follows. We had about a week of warm weather at the time the Eave Swallows came, this being followed by a prolonged cool period during which time but little insect life could be found, and the birds starved to death. The warm week early in the season may have served to bring the birds North in advance of their usual time. From whatever cause the destruction resulted, the fact remains that in this section of Northern Illinois over ninety per cent of the Eave Swallows have died.

Probably from the same influence that proved so hostile to the Eave Swallows, the Purple Martin (*Progne subis*) has this season much diminished in numbers. As nearly as I can judge we have not over one tenth of the usual number in this section. The Chimney Swifts are also present in greatly reduced numbers. It would be interesting to learn how extensive has been the destruction of these three species.—F. H. KIMBALL, M. D., *Rockford, Illinois*.

The Yellow-throated Warbler (*Dendroica dominica*) near Washington, D. C.—On July 28, 1889, while collecting at Four Mile Run, Virginia, a short distance from Washington, Mr. J. D. Figgins and the writer were fortunate enough to secure five specimens of the Yellow-throated Warbler. At the same locality, on August 1, a short search revealed five more specimens, and on August 5, still another bird was taken, making eleven in all. The five taken on July 28 were in very poor condition and beginning to moult, while the other six were in full fall plumage. All were adults.

Previous to the capture of the specimens just mentioned, but two Yellow-throated Warblers had been recorded from this vicinity, the first collected in 1842, and the second taken by Mr. William Palmer at Arlington, Virginia, Sept. 7, 1881. Both are preserved in the National Museum.

This species has been observed more or less commonly at several places south of Washington, in Maryland and Virginia—Quantico, Va., twenty-nine miles from here, being the nearest.—CHAS. W. RICHMOND, *Washington, D. C.*

Troglodytes aëdon, House Wren, Building in a Hornets' Nest.—Among the variety of novel nesting places chosen by this little bird, I

probably have witnessed one unobserved before by ornithologists. On May 18, 1889, near Chelsea, Delaware Co., Pennsylvania, I observed a pair of Wrens diligently engaged in lugging sticks into a large hornets' nest, which was hanging under the cornice of an old farmhouse. Near the top of the nest a cavity had been excavated, evidently by the birds, as the ground underneath was strewn with its fragments. I was unable afterwards to visit that locality, but from inquiry feel confident, they succeeded in rearing their brood unmolested.—J. HARRIS REED, *Chester, Pa.*

Birds near Springfield, Massachusetts.—Throughout the early summer of 1888, near the main highway between Springfield and Westfield, and in the immediate vicinity of three farmhouses, a male Mockingbird remained, singing incessantly. This year at exactly the same spot the bird has again appeared. Although I have never seen the female, still there is very little doubt that there is one there and that they bred there last year and are doing the same this year.

On September 14, 1889, I shot and captured a Leach's Petrel (*Oceanodroma leucorhoa*) upon the Connecticut River, four or five miles below Springfield. Its presence so far inland can undoubtedly be accounted for by the very violent northeast storm that had prevailed for the preceding two or three days. The bird sat upon the water and permitted me to approach in a boat within fifteen or twenty yards,—it would then arise and fly perhaps a quarter of a mile, then alight, repeating this action several times, until I finally shot it.

A pair of Red-headed Woodpeckers (*Melanerpes erythrocephalus*) have bred in Agawam, near Springfield, this summer; this fact may not be worthy of mention, but it is quite rare to find them here.—ROBERT O. MORRIS, *Springfield, Mass.*

Notes from Minnesota.—During a collecting trip to Madison, Lac Qui Parle County, Minnesota, which occupied the last three weeks in May, 1889, I observed among others the following birds:—

Limosa hæmastica. HUDSONIAN GODWIT.—A dozen or more seen in company with the Marbled Godwit. Two specimens taken.

Tringa fuscicollis. WHITE-RUMPED SANDPIPER.—Very abundant, inhabiting muddy sloughs, associated with Pectoral and Red-backed Sandpipers. A large series collected.

Arenaria interpres. TURNSTONE.—A small flock observed, out of which I secured four females and one male; found with Sandpipers.

Ammodramus caudacutus nelsoni. NELSON'S SHARP-TAILED FINCH.—A single individual, a female, was shot on the edge of a swamp of wild rice. There were no markings on the breast, and the entire under parts were strongly tinged with buff, in this respect resembling *A. leconteii*.

Rhynchophanes mccownii. MCCOWN'S LONGSPUR.—A male was taken in a large field; it was in company with a large number of Chestnut-collared Longspurs.

I can also record from Minneapolis, *Leucosticte tephrocotis littoralis*, a male of which was taken by a young collector on Jan. 3, 1889. It was shot from among a flock of Snow Buntings. I examined the specimen and compared it with one from Colorado collected in April. It was a shade darker than the Colorado bird.—GEO. G. CANTWELL, *Minneapolis, Minn.*

Notes from Wyoming.—While taking field notes on migration of birds during the spring just passed I have been fortunate in finding a few species beyond what appears to be their known eastern or western limit. My record is as follows:—

April 14, *Carpodacus mexicanus frontalis*, one individual, a male, and also *Agelaius gubernator*, one male bird in flock of *A. phæniceus*.

May 23, *Dendroica pensylvanica*, one male.

May 25, *Micropalama himantopus*, two birds, possibly a pair.

May 28, *Piranga erythromelas*, one male.

On June 11, a pair of *Carpodacus mexicanus frontalis* were found breeding one mile west of Cheyenne. The nest was close up under the eaves of a log house, upon the projecting end of a log. The female, nest, and eggs were brought to me for identification. — FRANK BOND, *Cheyenne, Wyoming.*

NOTES AND NEWS.

EUGEN FERDINAND VON HOMEYER, a distinguished ornithologist, and a Corresponding Member of the A. O. U., died at Stolp, Pomerania, May 31, 1889, in the eightieth year of his age, he having been born at Heerding, near Auklam, Nov. 11, 1809. His principal works were 'Systematische Uebersicht der Vögel Pommerns,' 1837, and Supplement to the same, 1841; 'Beiträge zur Kenntniss der Vögel Ostsibiriens und des Amurlandes' (J. f. O., 1868-70); and 'Die Wanderungen der Vögel mit Rücksicht auf die Zuge der Säugethiere, Fische und Insecten', 1881. He was also the author of a long list of important special papers, relating mainly to the birds of the Palæarctic Region, of which he possessed a very rich collection. He was for some years president of the Ornithological Society of Berlin.

THE SEVENTH CONGRESS of the American Ornithologists' Union will be held at the American Museum of Natural History, 77th Street and 8th Avenue, New York City, beginning Tuesday, November 12, 1889. Besides the usual routine of business, and action on important proposed amendments to the 'By-Laws' of the Union, many scientific papers will be presented. A large attendance of both Active and Associate Members is expected. As already announced (Auk, VI, pp. 82, 208) a new feature

of these meetings will be the examination of material bearing upon the status and relationships of several groups of perplexing forms of North American birds. The groups chosen for consideration at the next meeting are the Horned Larks (genus *Otocoris*) and the Thrushes known as *Turdus aliciae* and *Turdus aliciae bicknelli*. It is hoped that those having specimens of these groups will kindly send or bring them for inspection. Packages of such material addressed to J. A. Allen, American Museum of Natural History, 77th St. and 8th Ave., New York City, will be received and cared for, and duly returned to the owners at the close of the meeting. Already one important loan of such material has arrived, and it is hoped this notice will serve to remind the members of the Union to send in due time their contributions of material for examination.

DURING the last few months Dr. C. Hart Merriam has been making important explorations of the avian and mammalian faunas of the San Francisco Mountains in Arizona, under the auspices of the Department of Agriculture. Dr. L. Stejneger is also in Arizona, in the interest of the National Museum, collecting birds and reptiles, he having been appointed, some months since, Curator of the Department of Reptiles at the Museum.

MR. CLARK P. STREATOR has been collecting birds and Mammals in British Columbia during the past summer for the American Museum of Natural History, to which he has already shipped about one thousand specimens. His work will throw much light on the distribution of birds in the Northwest, besides supplying large series of specimens of species not previously well represented even in our large museums.

MR. WILLIAM B. RICHARDSON has recently completed a trip through the Sierra Madre, from Tepic to Zacatecas in Mexico, in the interest of Messrs. Salvin and Godman, resulting in a collection of some 2000 bird skins, collected mainly in a region never before explored by a naturalist.

MR. W. E. D. SCOTT has, during the past summer, given much attention to the birds of Mountain Lake and vicinity in Virginia, where, with his usual energy and activity, he has made a large collection of the summer birds of this interesting locality.

Messrs. McMillan & Co. of London are about to put to press Parts I and II ('Field' and 'General Ornithology') of Dr. Coues's 'Key to North American Birds', as a volume of their 'International Scientific Series.'

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ERRATA.

Page 78, line 5, for *August 11* read *August 1*.

" 147, " 15, for *hudsonicus* read *hudsonius*.

" 193, " 22, 36, and page 194, line 13, for *Myiadestes* read *Myadestes*.

Page 276, line 3 from bottom, for *olivascens* read *olivascens*.

" 277, " 3, for T. W. THORNE read P. M. THORNE.

" 293, " 26, for *sinuatus* read *principalis*.

324,2

Old
Series,
Vol. XIV

CONTINUATION OF THE
BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB

New
Series,
Vol. VI

9700
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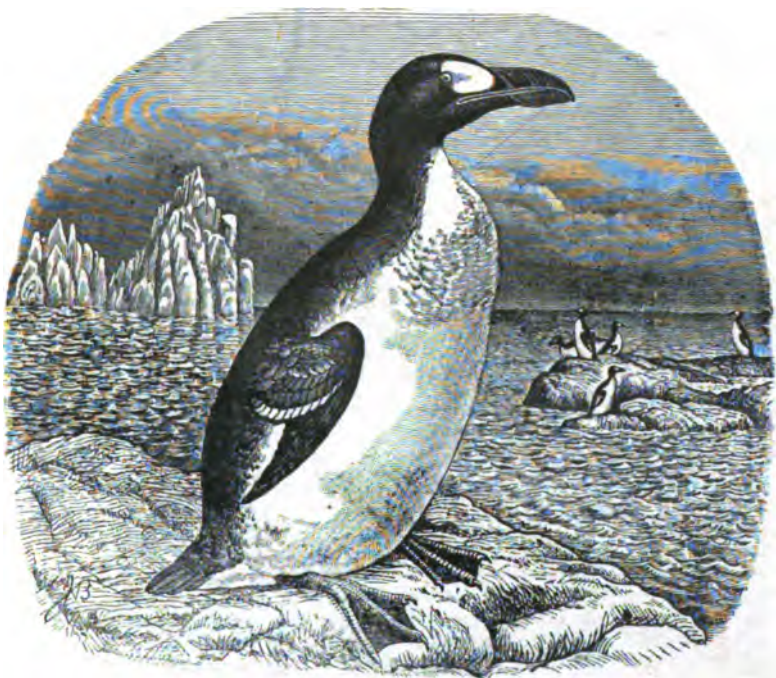
The Auk

A Quarterly Journal of Ornithology

Vol. VI

— JANUARY, 1889 —

No. 1



PUBLISHED FOR

The American Ornithologists' Union

NEW YORK

L. S. FOSTER

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'THE AUK' is edited by Mr. J. A. ALLEN, with the assistance of Mr. C. F. BATCHELDER.

TERMS:—\$3.00 a year, including postage, strictly in advance. Single numbers, 75 cents. Free to Honorary Members, and to Active and Associate Members of the A.O.U. not in arrears for dues.

Subscriptions and Advertisements should be addressed to the publisher, L. S. FOSTER, 35 PINE STREET, NEW YORK, N. Y. Foreign Subscribers may obtain 'THE AUK' through GURNEY AND JACKSON, 1 PATERNOSTER ROW, LONDON.

All articles and communications intended for publication, and all books and publications for notice, should be sent to J. A. ALLEN, AMERICAN MUSEUM OF NATURAL HISTORY, CENTRAL PARK, NEW YORK CITY.

Old
Series,
Vol. XIV

CONTINUATION OF THE
BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB

New
Series,
Vol. VI

97⁰⁰
Apr. 5. 1889

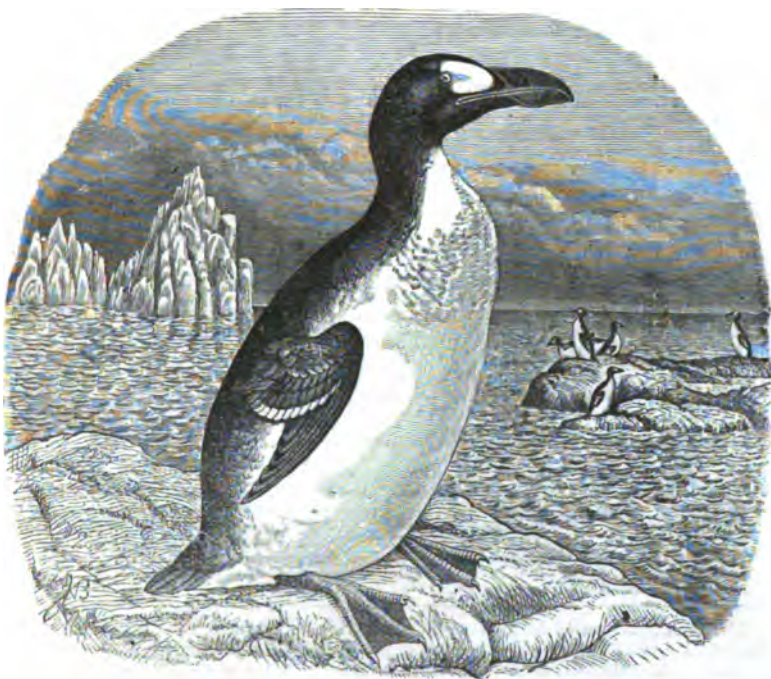
The Auk

A Quarterly Journal of Ornithology

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Old
Series,
Vol. XIV

CONTINUATION OF THE
BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB

New
Series,
Vol. VI

9700
July 12/1889

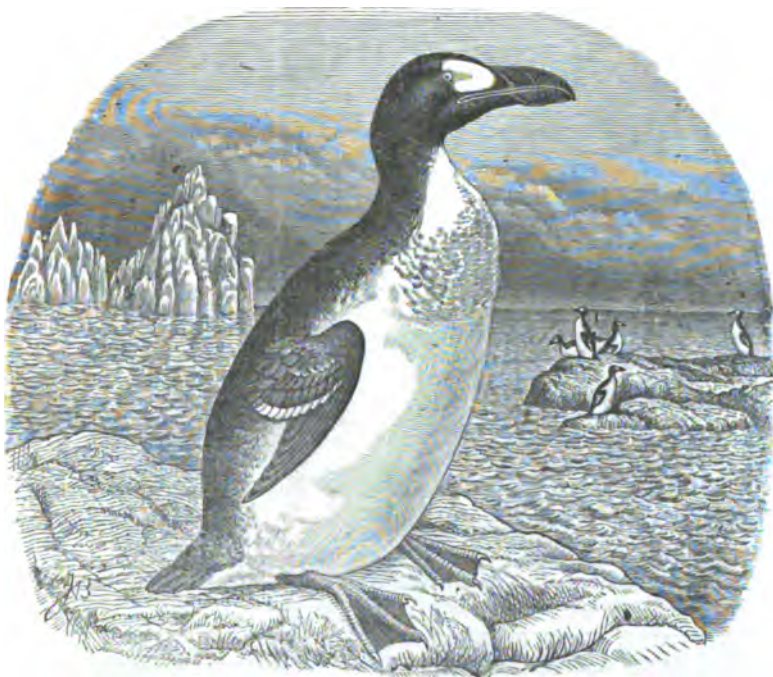
The Auk

A Quarterly Journal of Ornithology

Vol. VI

— JULY, 1889 —

No. 3



PUBLISHED FOR

The American Ornithologists' Union

NEW YORK

L. S. FOSTER

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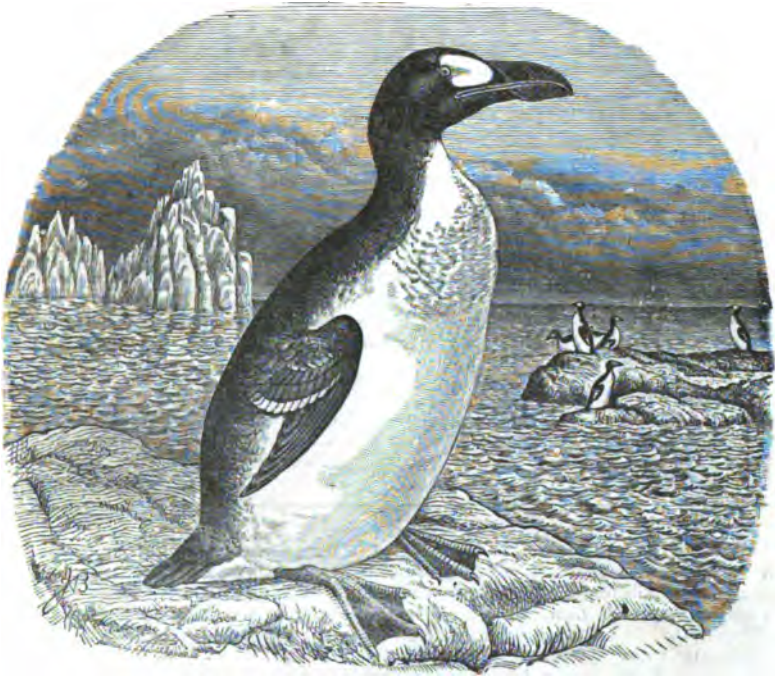
The Auk

A Quarterly Journal of Ornithology

Vol. VI

— OCTOBER, 1889 —

No. 4



PUBLISHED FOR

The American Ornithologists' Union

NEW YORK

L. S. FOSTER

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